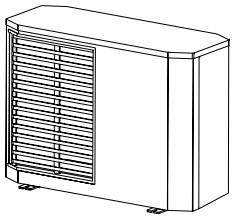
alféa extensa

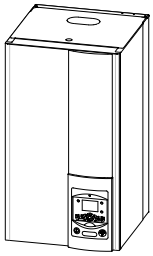
Heat pump air/water
split 1 service

Document n° 1455-3 ~ 09/12/2011

FR NL DE EN

alféa extensa 5
alféa extensa 6
alféa extensa 8





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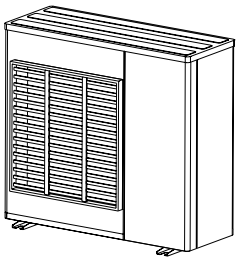
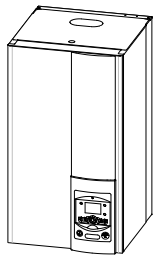
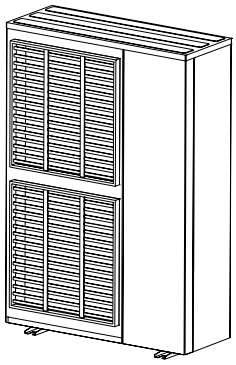
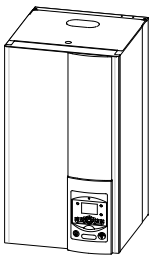






alféa extensa 13
alféa extensa 16



Installation and operating manual

intended for professionals

To be saved for future consultation

www.atlantic.fr

☞ **This device requires for its installation, the intervention of qualified personnel with a certificate of capacity for handling refrigerants.**

Contents

Packing list

Heat pump (HP)		*Outdoor unit*		*Hydraulic unit*	
Model	***Code***	***Model***	***Code***	***Model***	***Code***
alféa extensa 5	522884	AOYA18LALL	700718	MH extensa 5-8	023155
alféa extensa 6	522885			MH extensa 6-16	023141
alféa extensa 8	522886	AOYA30LBTL	700730	MH extensa 5-8	023155
alféa extensa 10	522887	AOYA36LBTL	700736	MH extensa 6-16	023141
alféa extensa 13	522658	AOYA45LBTL	700845		
alféa extensa 16	522659	AOY54LJBYL	700054		

Optional equipment

- ***2nd circuit kit*** (code 074011)
  - for connecting 2 heating circuits.
- ***Regulation extension kit*** (code 075311)
  - to manage a 2nd heating circuit, swimming pool etc...
- ***DHW kit*** (réf. 073991)
  - for connecting a DHW tank (with built-in electrical back-ups).
- ***Boiler connection kit*** (code 073989)
  - for connecting a boiler to the heat pump.
- ***Electrical back-ups kit*** (code 073985).
- ***Room thermostat T37*** (code 075308),
  Room thermostat T55 (code 073951)
  - for correcting the ambient temperature.
- ***Room control unit T75*** (code 073954),
  Room control unit radio T78 (code 074061)
  - for correcting the ambient temperature and programming the heat pump.
- ***Anti-vibration blocks*** (code 523574).
- ***White PVC floor support*** (code 809532) or
  Black rubber floor support (code 809536).
- ***Swimming pool kit*** (code 074726).
- ***Cooling kit*** (code 075312).

Scope of application

This heat pump provides:

- Heating in winter,
- Control of two heating circuits*,
- Production of domestic hot water* (provided that combined with a DHW tank),
- Installation with boiler connection* as a supplementary heating for the coldest days, or
- the addition of electrical back-ups*, for extra heating on the coldest days,
- Cooling in summer* (for floor heating-cooling system or fan-convectors),
- Heating the swimming pool*.

* : These options require the use of additional kits (see para "Optional equipment").

1 Description of the unit

1.1 Package

- 1 package: outdoor unit.
- 1 package: hydraulic unit and outdoor sensor.

1.2 Definitions

- Split: The heat pump consists of two elements (an outdoor unit for outdoor and a hydraulic unit for inside the dwelling).
- Air/water: The surrounding air is the energy source. This energy is transmitted to the water in the heating circuit by the heat pump.
- Inverter: the fan and compressor speeds are modulated according to the heating requirements. This technology enables you to save on energy and operate on a single-phase power supply, whatever the heat pump's output, by avoiding heavy intensities on start-up.
- COP (coefficient of performance): this is the relationship between the energy transmitted to the heating circuit and electrical energy consumed.

1.3 Specifications

Designation model		alféa extensa	5	6	8	10	13	16
Nominal heating performances (outdoor temperature/ initial temperature)								
Heat output								
+7 °C / +35 °C - Floor heating system	kW		4,70	6,00	7,71	10,56	13,20	15,50
-7 °C / +35 °C - Floor heating system	kW		4,71	5,03	6,55	8,31	10,30	12,15
+7 °C / +45 °C - Low temperature radiator	kW		4,27	5,68	7,23	8,10	10,30	13,03
-7 °C / +45 °C - Low temperature radiator	kW		4,10	4,77	6,40	8,07	9,25	10,78
Power absorbed								
+7 °C / +35 °C - Floor heating system	kW		1,05	1,43	1,86	2,71	3,30	4,31
-7 °C / +35 °C - Floor heating system	kW		1,75	1,89	2,73	3,41	3,96	4,86
+7 °C / +45 °C - Low temperature radiator	kW		1,21	1,68	2,28	2,61	3,25	4,54
-7 °C / +45 °C - Low temperature radiator	kW		1,80	2,16	3,04	3,93	4,20	5,26
Coefficient of performance (COP) . (+7 °C / + 35 °C)			4,50	4,20	4,15	3,90	4,00	3,60
Electrical characteristics								
Supply voltage (50 HZ)	V				230			
Maximum current for appliance	A		15	15	17	17	20	26
Nominal current	A		8,3	8,3	11,7	13,2	16,7	20,6
Maximum current of the electrical back-ups	A				13,05 / 26,1			
Power of the electrical back-ups (option)	kW				ajustable 3 or 6 kW			
Real power absorbed								
- by the fan	W		54	54	103	103	2x103	2x103
- by the circulation pump	W				70			
Maximum power absorption by the outdoor unit.	W		3450	3450	3910	4500	4600	5980
Hydraulic circuit								
Maximum operating pressure	bar				3			
Hydraulic system flow rate 4°C<Δt<8°C (nominal conditions)								
- Minimum	l/hr		540	600	860	1000	1380	1670
- Maximum	l/hr		1100	1400	1700	2100	2700	3300
Various								
Weight of outdoor unit	kg		40	40	64	64	98	105
Noise level at 1 m [1] (hydraulic unit)	dB(A)				39			
Sound power level according to EN 12102 [2] (hydraulic unit)	dB(A)				46			
Noise level at 5 m [1] (outdoor unit)	dB(A)		39	39	41	41	44	44
Sound power level according to EN 12102 [2] (outdoor unit)	dB(A)		65	66	68	68	71	71
Weight of hydraulic unit (empty / full of water)	kg				42 / 58			
Water capacity of the hydraulic unit	l				16			
Heating system operating limits								
Outdoor temperature mini/maxi	°C				-15 / +24			
Initial max. heating water temperature								
- Floor heating system	°C				45			
- Low temperature radiator	°C				52			
Flow min. heating water temperatur	°C				8			
Refrigeration circuit								
Diameter of gas pipes	inches		1/2	1/2	5/8	5/8	5/8	5/8
Diameter of liquid pipes	inches		1/4	1/4	3/8	3/8	3/8	3/8
Factory charge of refrigerant R410A [3]	g		1250	1250	2100	2100	3350	3400
Maximum operating pressure	bar				45			
Minimum length of pipes.	m				5			
Maximum length of pipes [4]	m		15	15	20	20	20	20
Maximum level difference	m		15	15	20	20	20	20

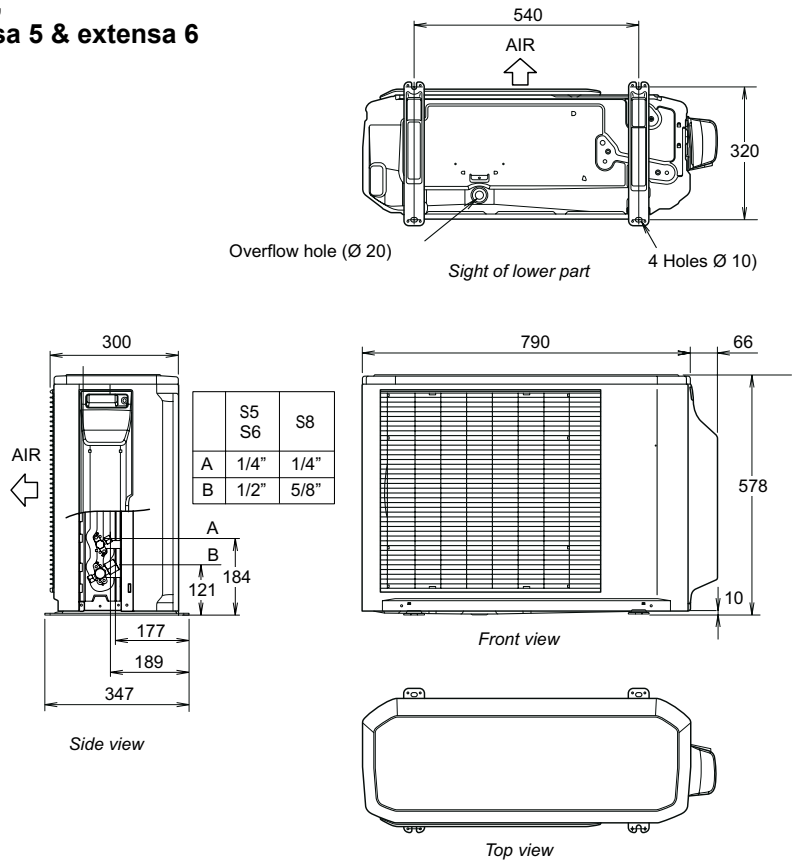
[1] Sound pressure level in (x)m of the device, 1,5m of the ground, the open field.

[2] The sound power level is a laboratory measure of the emitted sound power but contrary to the noise level, it doesn't correspond to the measure of the felt.

[3] Refrigerant R410A (as per the standard EN 378.1).

[4] Factory charge of refrigerant R410A.

☞ Outside unit, Model extensa 5 & extensa 6



☞ Outside unit, Model extensa 8 & extensa 10

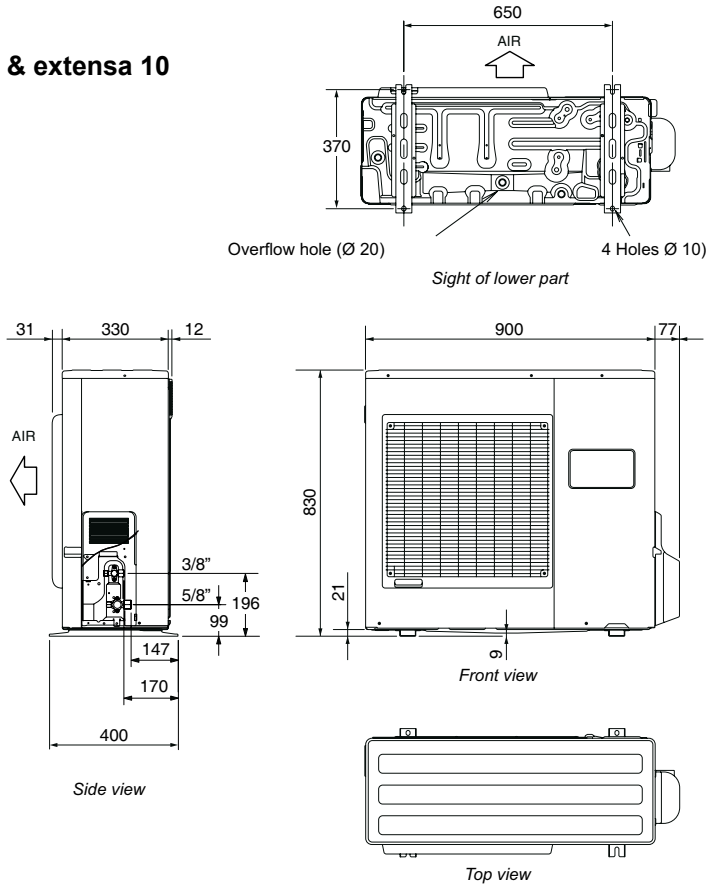


figure 1 - Dimensions in mm

☞ Outside unit, Model extensa 13 & extensa 16

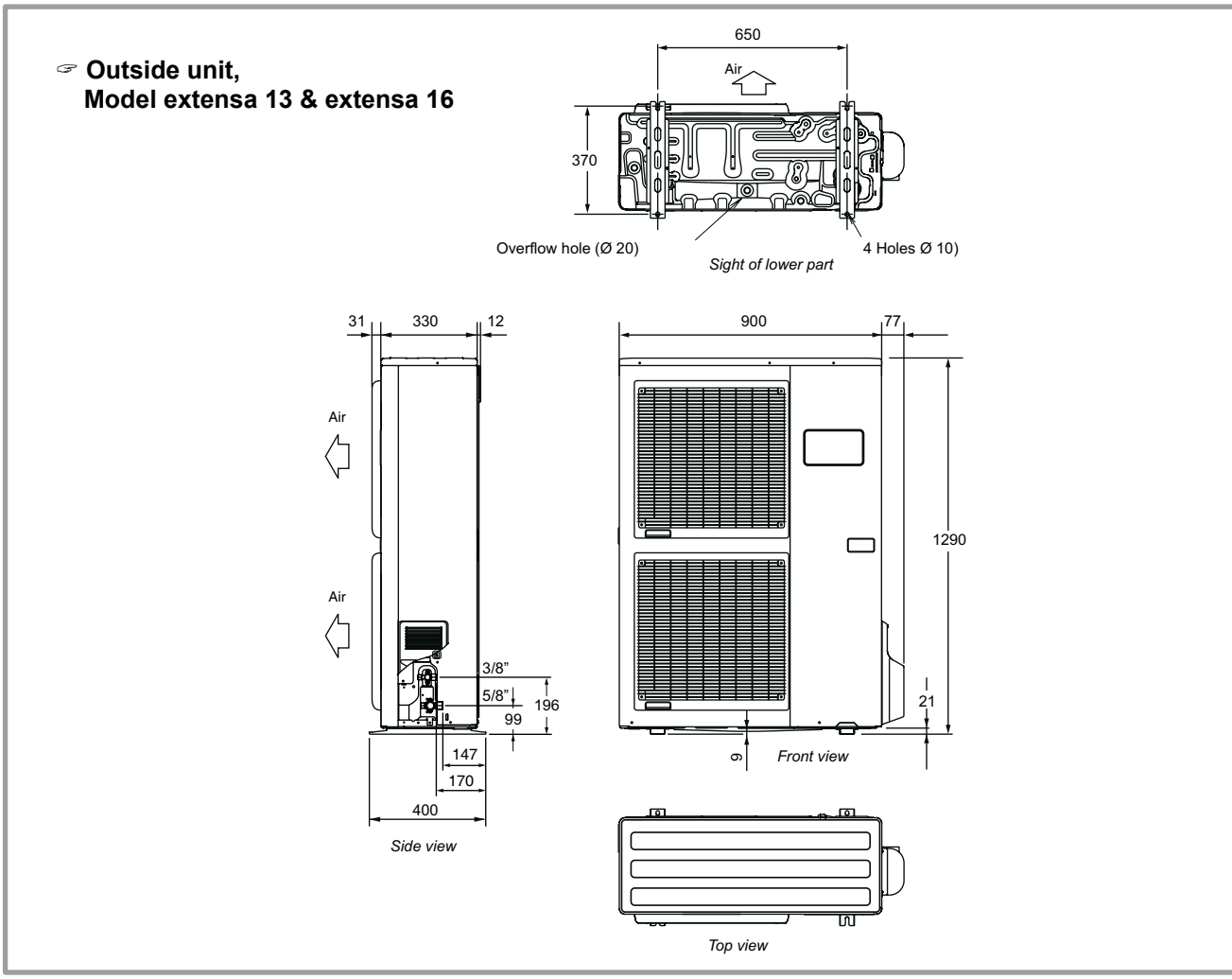


figure 2 - Dimensions in mm

☞ Hydraulic module

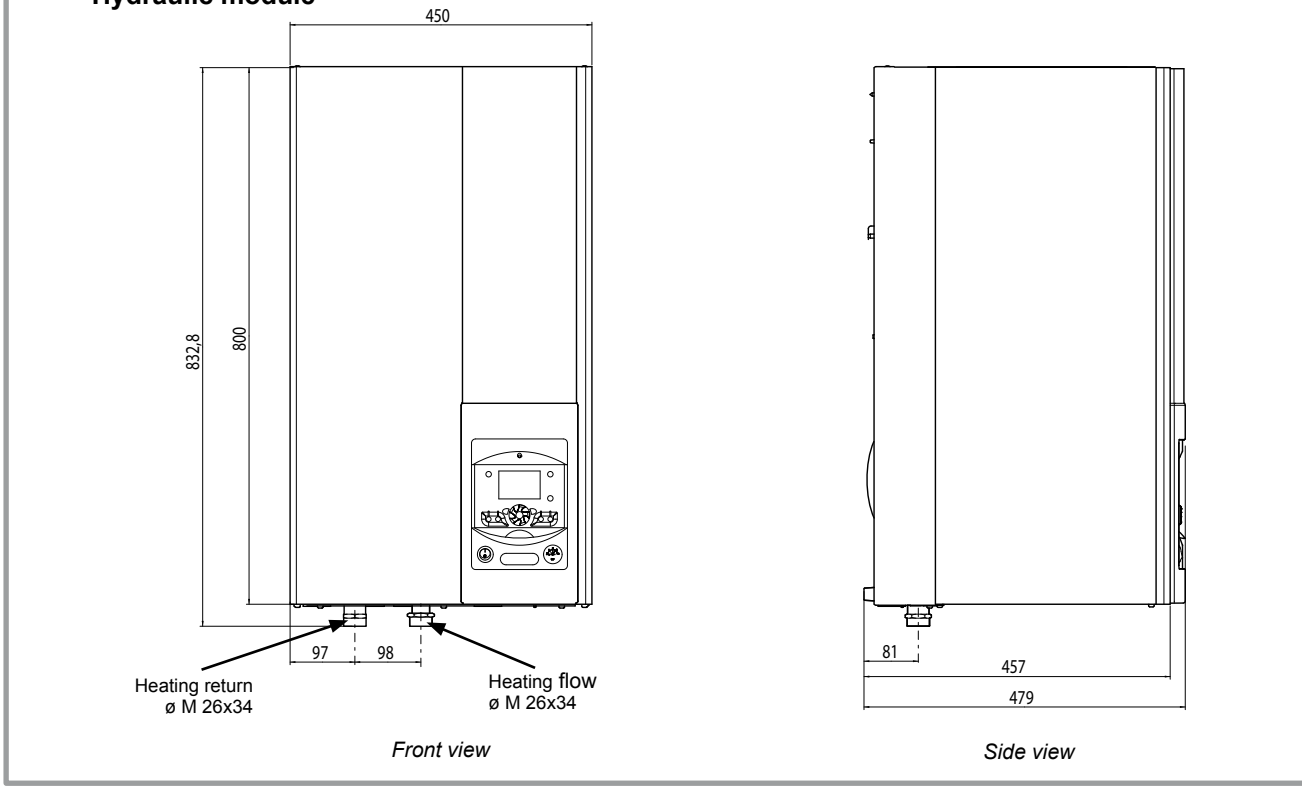


figure 3 - Dimensions in mm

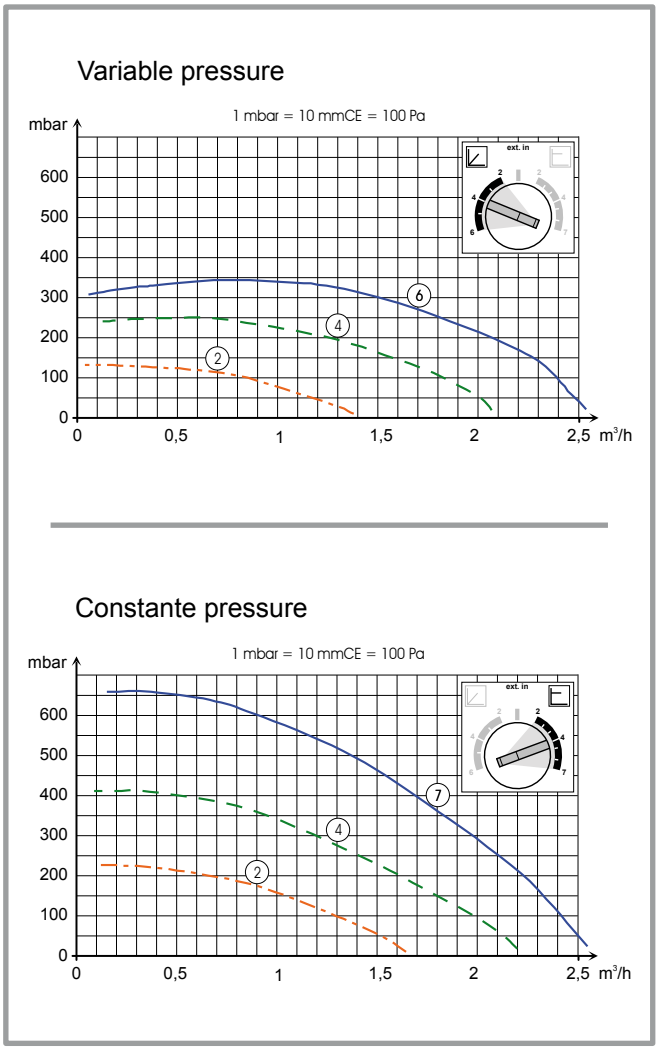


figure 4 - Hydraulic pressures and flow rates available

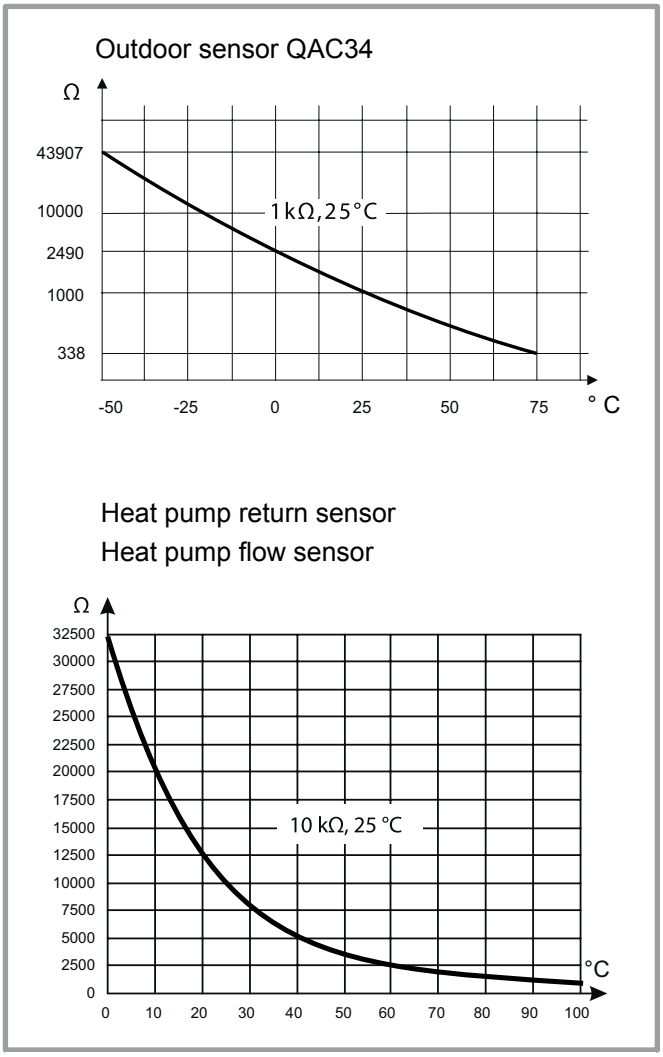


figure 5 - Ohmic values of the sensors (Hydraulic module)

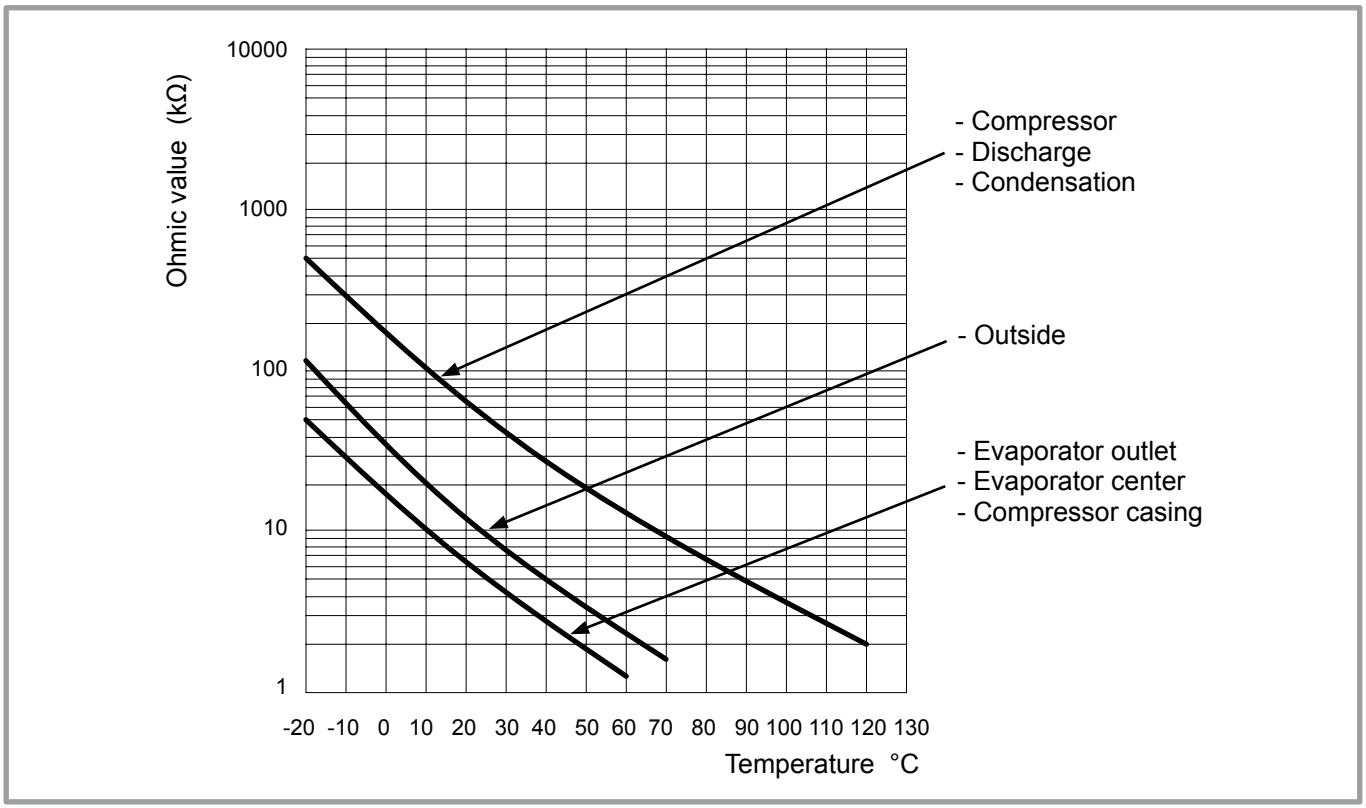
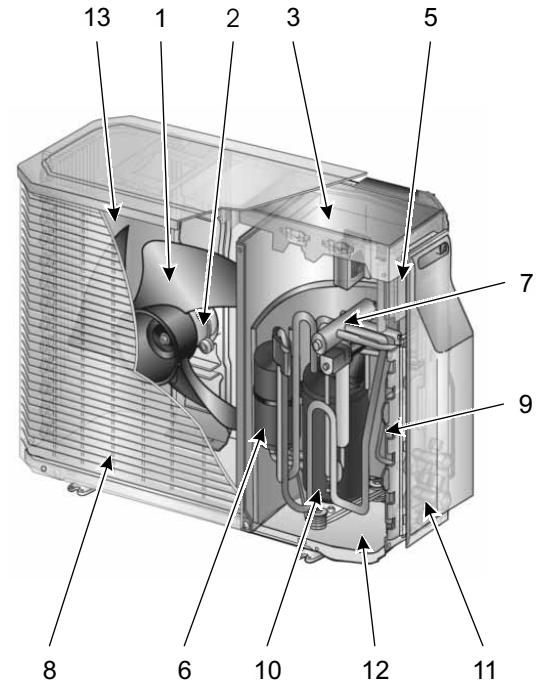


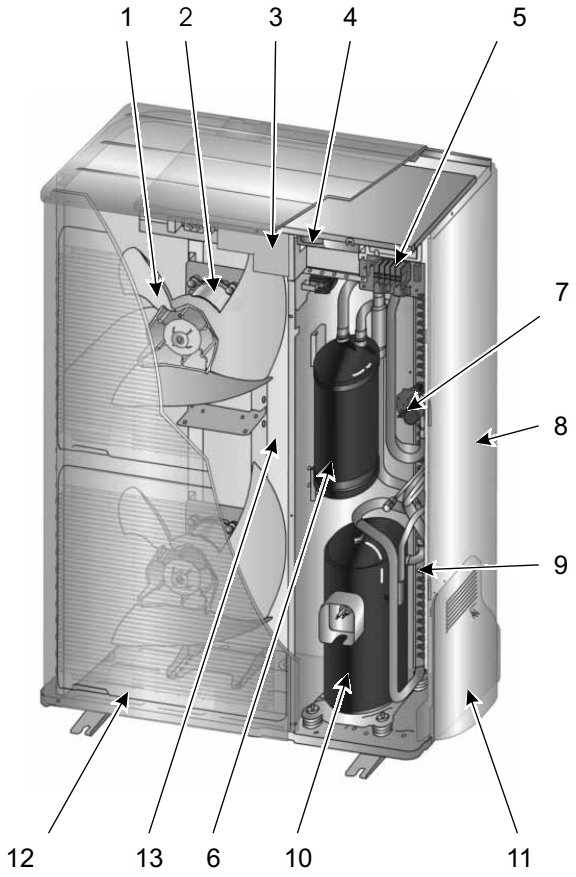
figure 6 - Ohmic values of the sensors (outside unit)

1.4 Descriptif

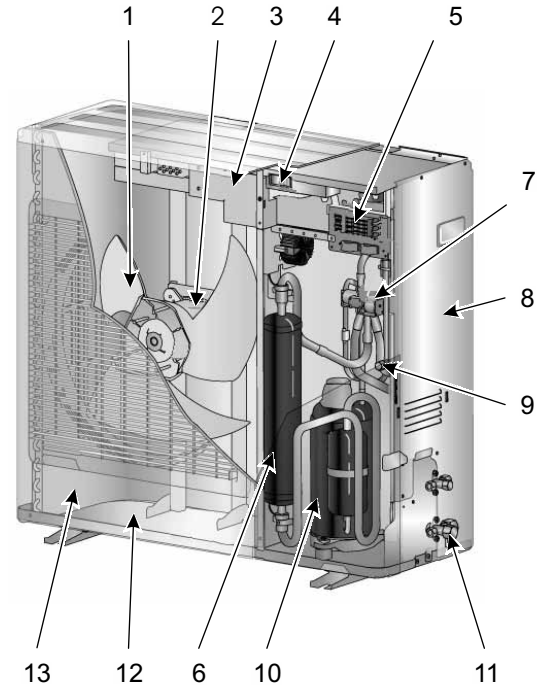
☞ **Model extensa 5 & extensa 6**



☞ **Model extensa 13 & extensa 16**



☞ **Modèle extensa 8 & extensa 10**



Legend :

1 - Low-noise, high-output coil.
2 - Electric variable speed "inverter" motor.
3 - "Inverter" control module.
4 - Vacuum start (pump down) and control light.
5 - Connection terminal blocks (power and interconnection).
6 - Refrigerant accumulator bottle.
7 - Cycle reversing valve.
8 - Anti-corrosion treated bodywork.
9 - Electronic expansion valve.
10 - Noise and temperature insulated "inverter" compressor.
11 - Refrigeration connection valves (flared connectors) with protective caps.
12 - Holding tank with condensate drain hole.
13 - High-performance exchange surface evaporator ; anti-corrosion treated hydrophilic aluminium fins and grooved copper tubes.

figure 7 - Outside unit components

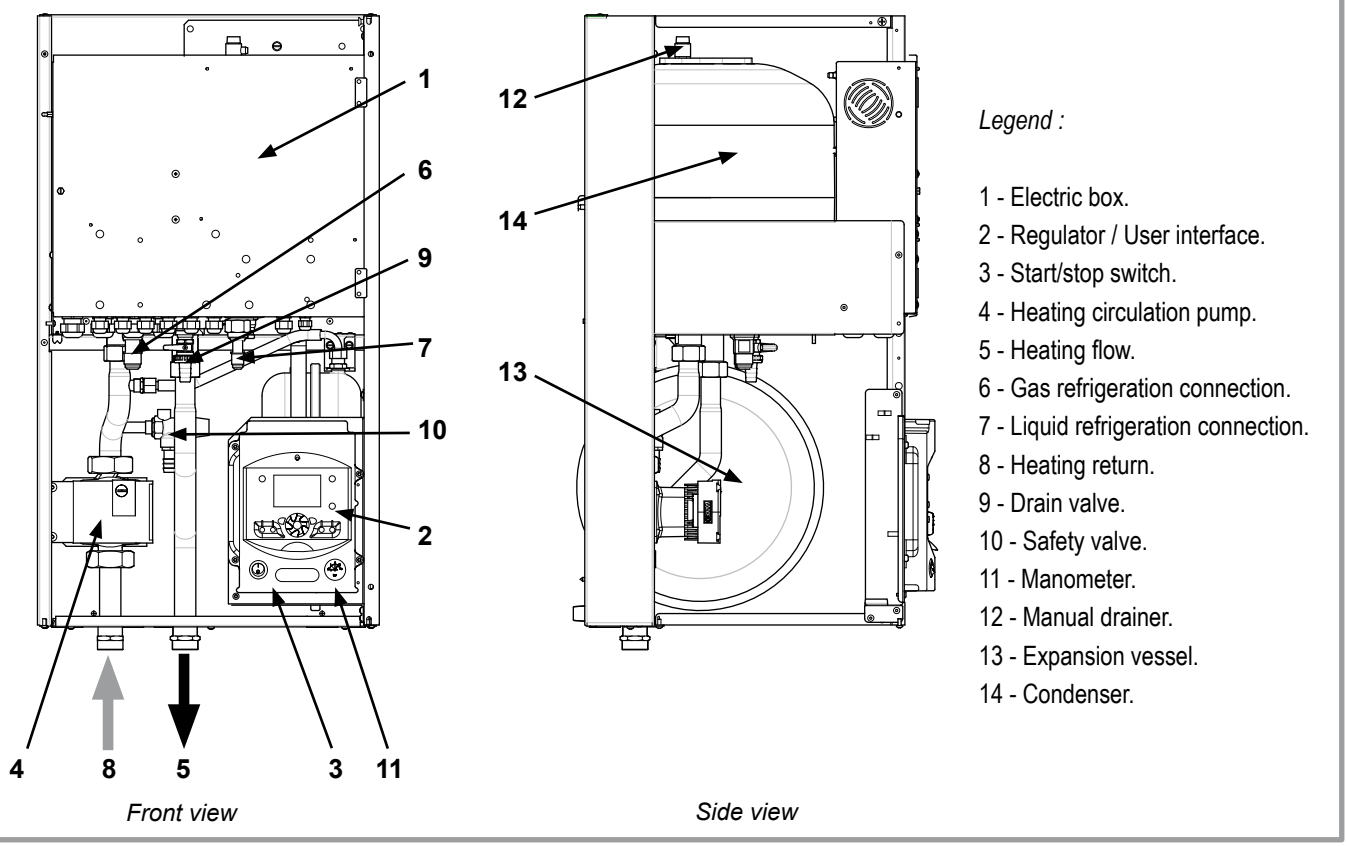


figure 8 - Hydraulic unit components

1.5 Operating principle

The heat pump transmits the energy contained in the surrounding air into the dwelling to be heated.

The heat pump consists of four main elements, in which a refrigerant fluid (R410A) circulates.

- In the evaporator (ref. **13**, figure 6, page 9) : The energy is taken from the surrounding air and is transmitted to the refrigerant. Because it has a low boiling point, it changes from the liquid state to the vapour state, even in cold weather (down to -15 °C outdoor temperature).
- In the compressor (ref. **10**, figure 6, page 9) : The vaporised refrigerant brought to high pressure and takes on more calories.
- In the condenser (ref. **14**, figure 7, page 10) : The energy in the refrigerant is transmitted to the heating circuit. The refrigerant returns to liquid state.
- In the expansion valve (ref. **9**, figure 6, page 9) : The liquefied refrigerant is brought back to low pressure and returns to its initial temperature and pressure.

The heat pump is equipped with a controller, which controls the room temperature based on the outdoor temperature measurement and governed by the temperature control. The room thermostat (option) provides a corrective action for the temperature control.

The hydraulic unit can be optionally fitted with an electrical back-up system or boiler connection which starts up in order to provide addtional heating during the coldest periods.

• Regulation functions

- The heating circuit's initial temperature is controlled by the temperature control.
- The power of the outdoor unit is modulated according to flow heating temperature via the "inverter" compressor.
- Control of the electrical back-up heating (option).
- The daily timer program enables you to define the periods for comfortable or reduced ambient temperature.
- Summer/winter mode switchover is automatic.
- Control of the supplementary boiler* (options).
- The room thermostat (option)*: provides a corrective action for the temperature control.
- Control of a second heating circuit*.
- Domestic hot water*: Heating time programme, control of the operation of the DHW circulation pump.
- Managing the cooling*.
- Control of swimming pool heating*.

* If the heat pump is equipped with optional equipment and the associated kits.

• Protection functions

- Anti-legionella cycle for domestic hot water.
- Frost protection: Frost protection cuts in if the low-temperature point of the heating circuit falls below 5 °C.

• Domestic hot water (DHW) operating principle

Two domestic hot water (DHW) temperatures can be parametered: nominal temperature (line 1610 to 55 °C) and reduced temperature (line 1612 to 40 °C).

The default heat pump program (line 560, 561 and 562) is set for nominal temperature from 0h00 to 5h00 and from 14h30 to 17h00 and for reduced temperature for the rest of the day. This optimizes electrical consumption while ensuring comfortable availability of hot water.

Setting for reduced temperature can be useful to prevent the DHW from switching on too often and for too long during the day.

The production of domestic hot water (DHW) is triggered when the temperature in the tank falls 7°C (setting from line 5024) below the set temperature.

The heat pump produces the domestic hot water, which is then additively heated, if required, by electrical back-up heating inside the tank. To ensure a DHW setting over 45°C, the electrical back-up heating or the boiler must be left on.

Depending on how the parameter (1620) is set, nominal temperature can be reached 24h/day or only at night or depending on the heat pump programme.

The production of DHW takes priority over heating; nevertheless the production of DHW is controlled by cycles that control the times assigned to the heating and the production of DHW in the event of simultaneous demand.

A function to switch from "reduced" to "nominal" is provided on the front of the user interface. (see ref. **5**, figure 28, page 30).

Anti-legionella cycles can be programmed.

• Fan convectors with integrated control system

Do not use a room sensor in the area.

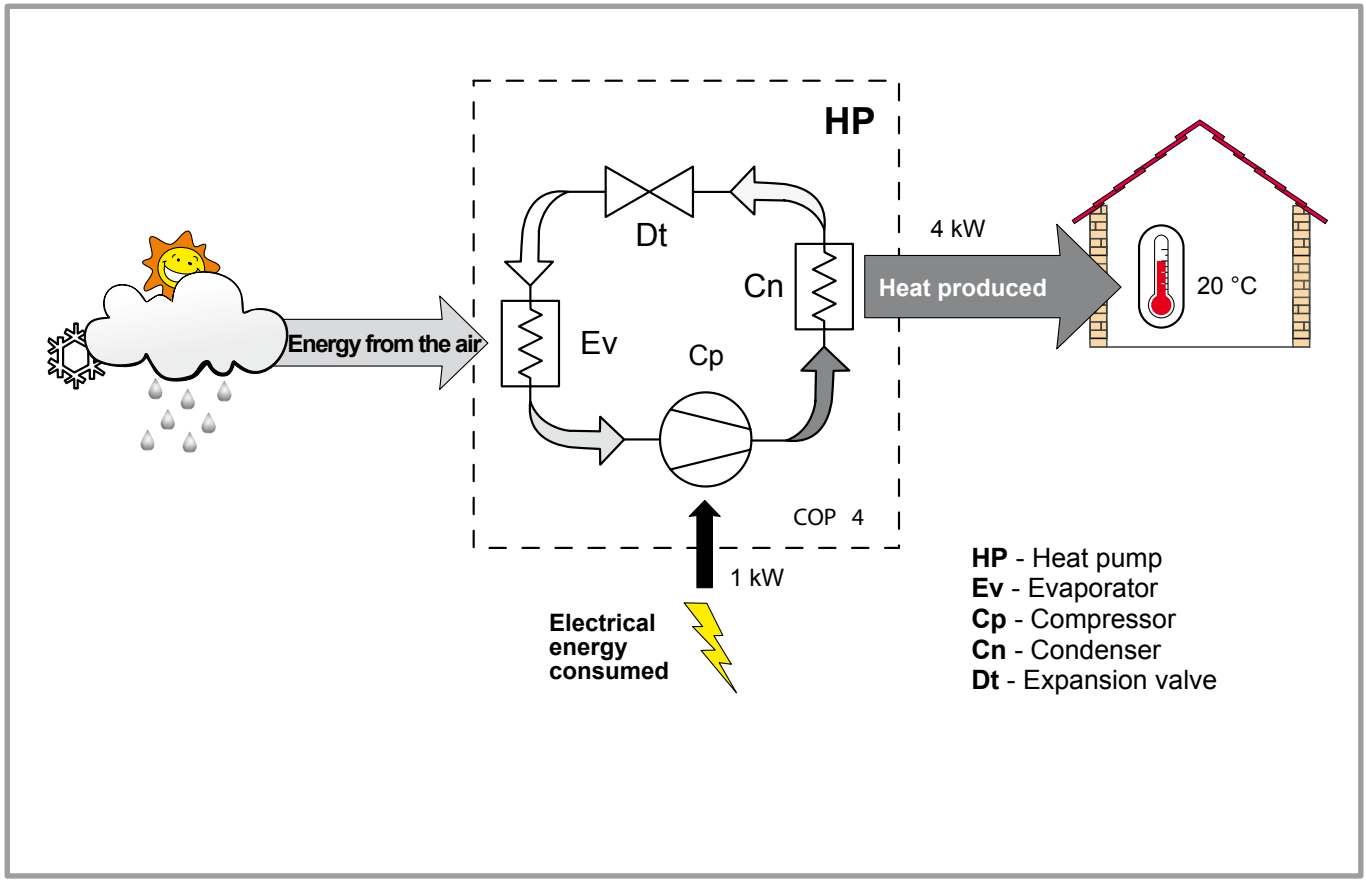


figure 9 - Heat pump operating principle

2 Installation

2.1 Regulation installation and maintenance conditions

The appliance must be installed and the maintained by an approved professional in accordance with the prevailing regulations and code of practice, in particular:

- The legislation on the handling of refrigerants.
- Heating installation with floor heating system.
- Low voltage electrical installations - Rules.

2.2 Unpacking and reservations

2.2.1 Receipt

Carefully check, in the carrier's presence, the general appearance of the appliances and check that the outdoor unit is not laid on its side or back.

In the case of any dispute, state any appropriate reservations to the carrier in writing within 48 hours and send a copy of this letter to the After-Sales service.

2.2.2 Handling

The outdoor unit should not be laid on its side or back during transport.

If not kept upright during transport, the appliance could be damaged through displacement of the refrigerant and deformation of the compressor suspension.

Any damage caused by transportation of the unit lying down is not covered by the warranty.

If necessary the outdoor unit may be tilted only during manual handling (to go through a door or use a staircase). This operation must be conducted very carefully and the appliance must be immediately restored to upright position.

2.2.3 Accessories provided

Accessories provided with the outdoor unit (figure 9).

Accessories provided with the hydraulic unit (figure 10).

2.3 Installation position

The choice of the position for installation is particularly important insofar as any later movement is a delicate operation requiring the intervention of a qualified person.

Choose the site of the outdoor unit and the hydraulic unit after discussion with the customer.

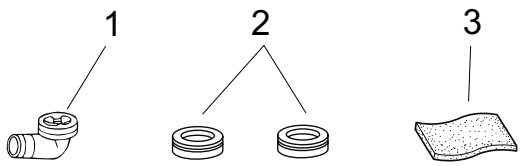
Observe the maximum and minimum distances between the hydraulic unit and the outdoor unit (page 14), the guarantee of the performances and the system's service life depend on this.

2.4 Installation of the outdoor unit

2.4.1 Installation precautions

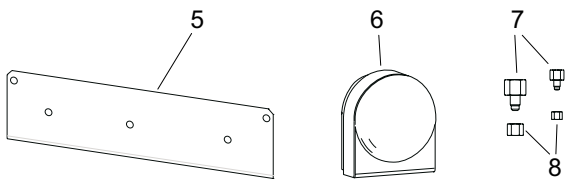
☞ **The outdoor unit must only be installed outdoor (outdoors). If a shelter is required, it must have broad openings on the 4 walls and observe the installation clearances (figure 11).**

- Choose a site that is preferably sunny and sheltered from strong cold predominant winds (mistral, tramontana, etc…).
- The unit must be easily accessible for future installation and maintenance work (figure 11).
- Ensure that it is possible to make the connections to the hydraulic unit easily.
- The outdoor unit is able to withstand bad weather but avoid installing in a position where it is likely to be exposed to significant dirt or flowing water (under a defective gutter for example).
- Water may drain away from the outdoor unit when it is operating. Do not install the appliance on a paved terrace; choose a well-drained place (e.g. gravel or sand). If the installation is in an area where the temperature can be lower than 0°C for a long period, check that the presence of ice does not present any danger. A drainage pipe can also be connected to the outdoor unit (see figure 12, page 14).



1	Elbow	For draining away the condensates
2	Plug (x 2) (Depending on the model)	
3	Flexible insulation plate	For filling the empty space at the input to the interconnection cable

figure 10 - Accessories provided with the outdoor unit



5	Bracket	To secure the hydraulic model
6	Outdoor sensor	To monitor the outside temp
7	Adaptater 1/2" - 5/8" and/or 1/4" - 3/8"	To connect the flared connection and the hydraulic model
8	Nut 1/2" and/or 1/4"	

figure 11 - Accessories provided with the hydraulic unit

- Nothing should obstruct the air circulation through the evaporator and from the fan (figure 11).
- Keep the outdoor unit away from heat sources and inflammable products.
- Make sure the appliance not disturb the surrounding area or users (noise level, draught generated, low temperature of the air being blown out, with the risk of freezing plants in its path).
- The surface on which the appliance is installed must:
- be permeable (soil, gravel, etc),
- support its weight easily,
- provide a solid fixing and
- not transmit any vibration to the dwelling. (Anti-vibratory blocks are available as an option).
- The wall brackets is strongly discouraged due to vibration.

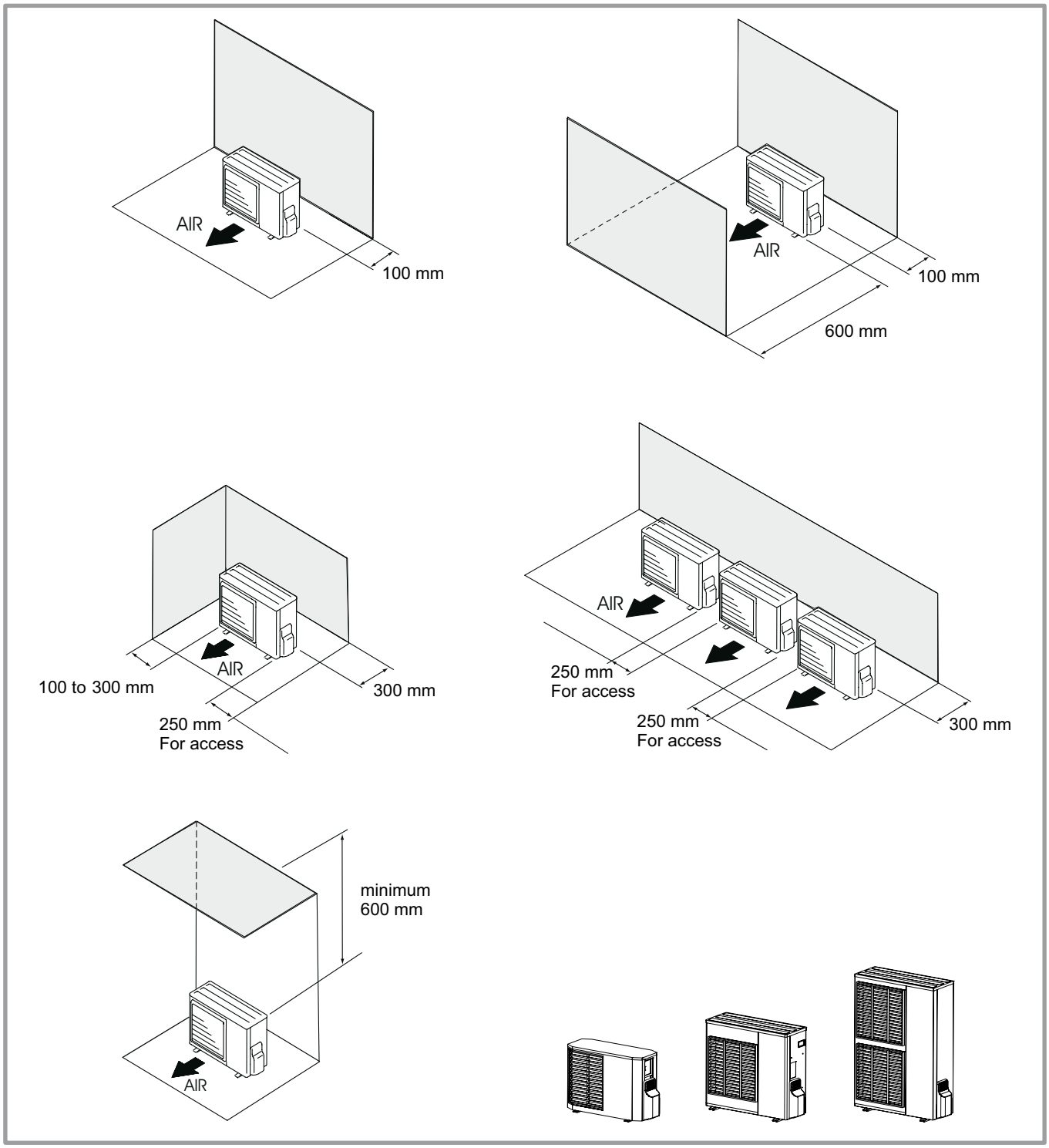


figure 12 - Minimum installation clearances around outside unit (all models)

2.4.2 Outdoor unit positioning

The outdoor unit must be raised at least 50 mm above ground level. In areas prone to snow, this height should be increased but should not exceed 1,5 m (figure 12).

- Fasten the outdoor unit by means of screws and rubber tightening or toothed lock washers to avoid their coming loose.

☞ **Warning**

In the area with heavy snowfall, if the intake and outlet of outdoor unit is blocked with snow, it might become difficult to get warm and it is likely to cause of the breakdown.

Please construct a canopy and a pedestral or place the unit on high stand (local configured).

- Set the unit on a strong stand, such as one made of concrete blocks to minimize shock and vibration.
- Do not set the unit directly on the ground because it will cause trouble.

2.4.3 Condensate drain hose

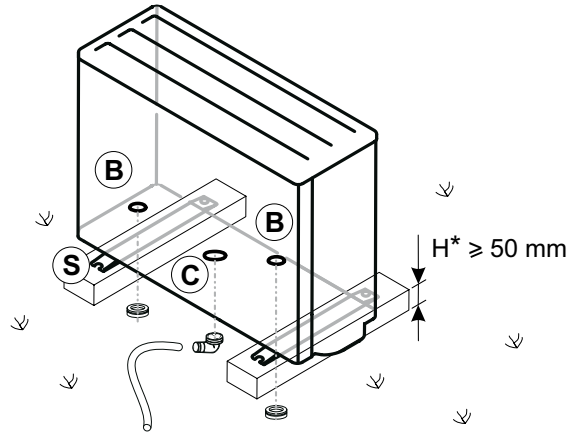
(see figure 12).

If the use of a discharge pipe is imperative:

- Use the elbow provided (**C**) to connect a 16mm-diameter hose for draining away the condensate.
- Use the stopper or stoppers provided (**B**) to block the opening of the condensate tank.

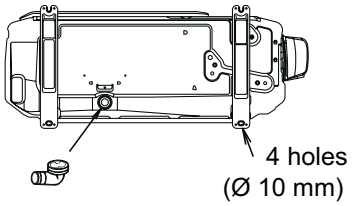
Allow for the condensate to flow away under the force of gravity (waste water, rain water, gravel bed).

☞ **If the installation is made in an area where the temperature can be lower than 0°C for a long period, provide the drain pipe with a trace resistance to avoid it icing up. The trace resistance must heat not only the pipe but also the bottom of the appliance's condensate collection tank.**



* In regions subject to frequent snow,
(H) must be greater than the average snow layer
.

Depending on the model



Depending on the model

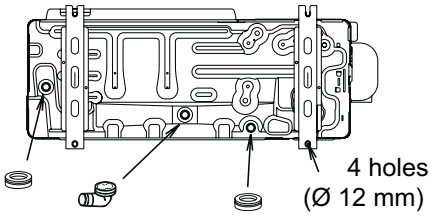
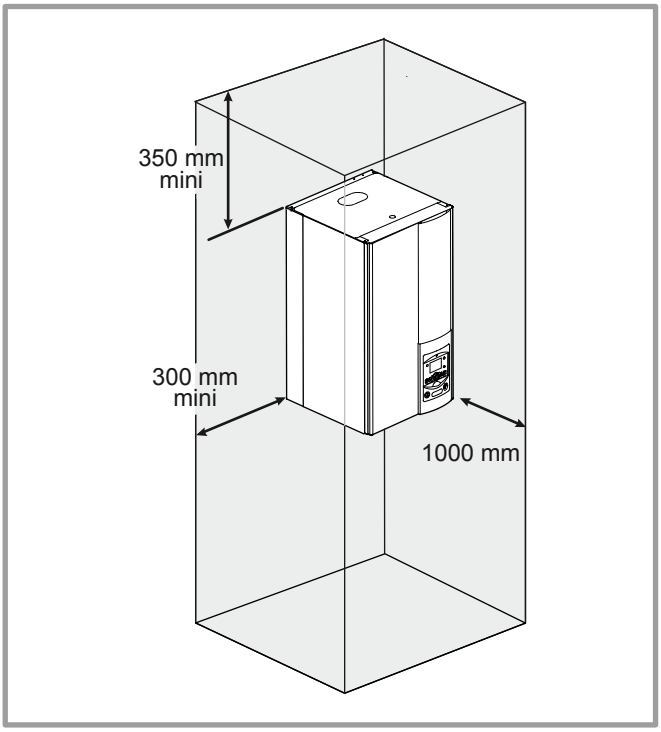


figure 13 - Positioning of the outside unit, draining away the condensate

2.5 Installing the hydraulic unit

2.5.1 Installation precautions

- The room in which the appliance operates must comply with the prevailing regulations.
- To facilitate maintenance and to allow access to the various components, we recommend that you provide sufficient space all around the hydraulic unit.



- Be careful not to bring inflammable gas near to the heat pump during its installation, in particular when it requires brazing. The appliances are not fireproof and should therefore not be installed in a potentially explosive atmosphere.

2.5.2 Positioning the hydraulic unit

- Fix the support solidly (4 screws and plugs) to a flat, hard-wearing wall (not a light partition) ensuring that it is correctly levelled.
- Hook the appliance onto its support.

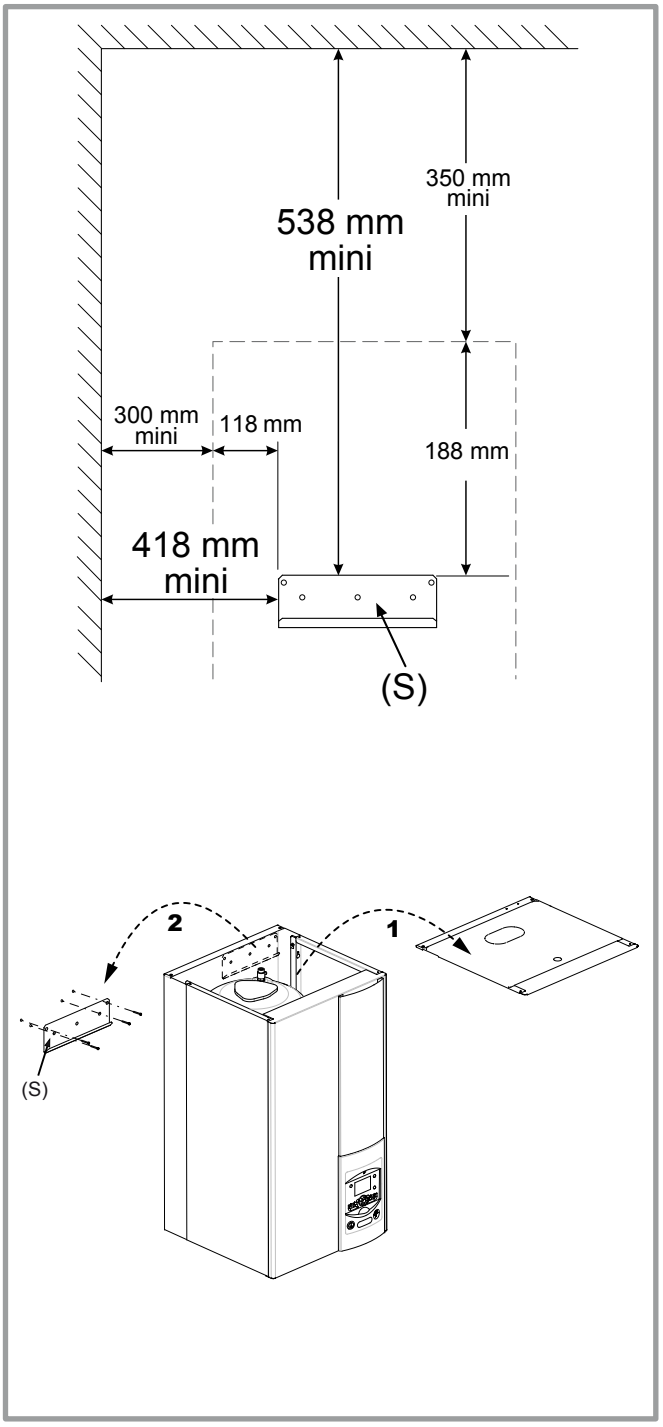


figure 14 - Mounting bracket

2.6 Refrigeration connections

☞ **This appliance uses refrigerant R410A.**

Comply with the legislation for handling refrigerants.

2.6.1 Rules and precautions

• After every intervention on the refrigeration circuit and before final connection, take care to replace the plugs in order to avoid any pollution from the refrigeration circuit.

• Tools

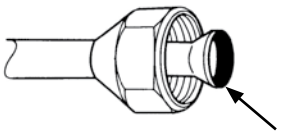
- Set of manometers with hoses exclusively reserved for HFCs (Hydrofluorocarbons).
- Vacuum pump specially for HFCs.
- Provision on using tools that have been in contact with HCFCs (R22 for example) or CFCs.
- Use of a traditional vacuum pump is authorized if, and only if, it is fitted with a non-return valve on the suction side.

The manufacturer declines any liability with regard to the guarantee if the above instructions are not observed.

• Flared connections

☞ **Lubrication with mineral oil (for R12, R22) is forbidden.**

- Only lubricate with polyolester refrigeration oil (POE). If POE is not available, fit without lubrication.



Coat the flared surface with **POE refrigeration oil.**

Do not use mineral oil.

• Brazing on the refrigeration circuit (if necessary)

- Silver brazing (40% minimum recommended).
- Brazing only under dry nitrogen internal flux.

• To eliminate any filings in the pipes, use dry nitrogen to avoid introducing any humidity that may adversely affect the appliances operation. In general, take every precaution to avoid humidity penetrating into the appliance.

• Proceed to insulate the gas and liquid pipes to avoid any condensation. Use pipe insulators resistant to temperatures over 90°C. In addition if the humidity level in areas where the refrigeration pipes are installed is expected to exceed 70%, protect the pipes with pipe insulators. Use an insulating material thicker than 15mm if the humidity level is 70~80%, and an insulating material thicker than 20mm if the humidity exceeds 80%. If the recommended thicknesses are not observed under the conditions described above, condensation will form on the surface of the insulation material. Lastly, take care to use pipe insulators whose thermal conductivity is 0.045 W/mK or less when the temperature is 20°C. The insulation must be impermeable to resist the passage of steam during the defrosting cycles (fibreglass wool is prohibited).

2.6.2 Refrigeration connections

The outdoor unit must be connected to the hydraulic unit with copper pipes and connections (refrigeration quality), insulated separately.

Comply with the pipe diameters and the permitted pipe lengths (figure 15, page 18).

The minimum length of the refrigeration connections is 5 m for correct operation.

The appliance will be excluded from guarantee if it is used with refrigeration connections less than 5 m long.

Manipulate the pipes and take them through walls with protective plugs in place.

2.6.3 Accessing the hydraulic module's refrigerant connections

- Remove the front panel (2 screws **A**).
- Remove the left-hand panel (2 screws **B**).

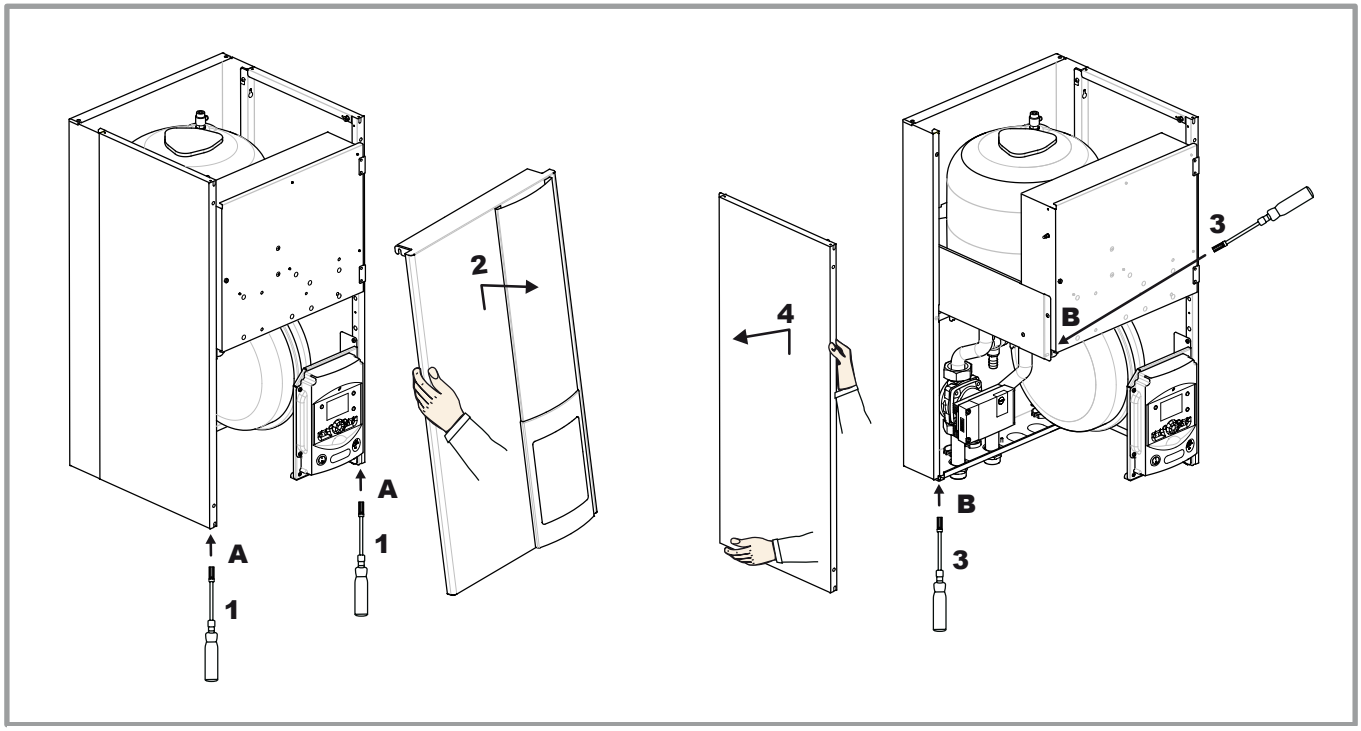
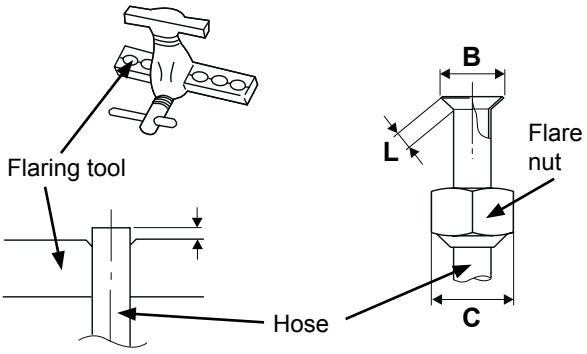


figure 15 - Removing the casing

2.6.4 Creating the flarings

- Cut the pipe to an appropriate length with a pipe-cutter without deforming it.
- Carefully deburr it, holding the pipe towards the bottom to avoid introducing filings into the pipe.
- Remove the flared connection nut situated on the valve to be connected and slip the pipe into the nut.
- Proceed to flare, letting the pipe overflow the flaring tool.
- After flaring, check the condition of the working radius (**L**). This must not show any scratch or trace of any fracturing. Also check the dimension (**B**).



ø Hose	dimensions in mm		
	L	B $^{0}/_{-0,4}$	C
6,35 (1/4")	1,8 to 2	9,1	17
9,52 (3/8")	2,5 to 2,7	13,2	22
12,7 (1/2")	2,6 to 2,9	16,6	26
15,88 (5/8")	2,9 to 3,1	19,7	29

HP model		extensa 5 & 6		extensa 8, 10, 13 & 16	
		gas	fluid	gas	fluid
Outdoor unit connections		1/2"	1/4"	5/8"	3/8"
Refrigeration connections	Diameter	(D1) 1/2"	(D2) 1/4"	(D1) 5/8"	(D2) 3/8"
	Minimum length (L)	5		5	
	Maximum length* (L)	15		20	
	Maxi level difference (D)	15		20	
Male-female adapter (reduction)		(R1) 1/2" - 5/8"	(R2) 1/4" - 3/8"	none	
Hydraulic unit connections		5/8"	3/8"	5/8"	3/8"

* : without additional charge of R410A.

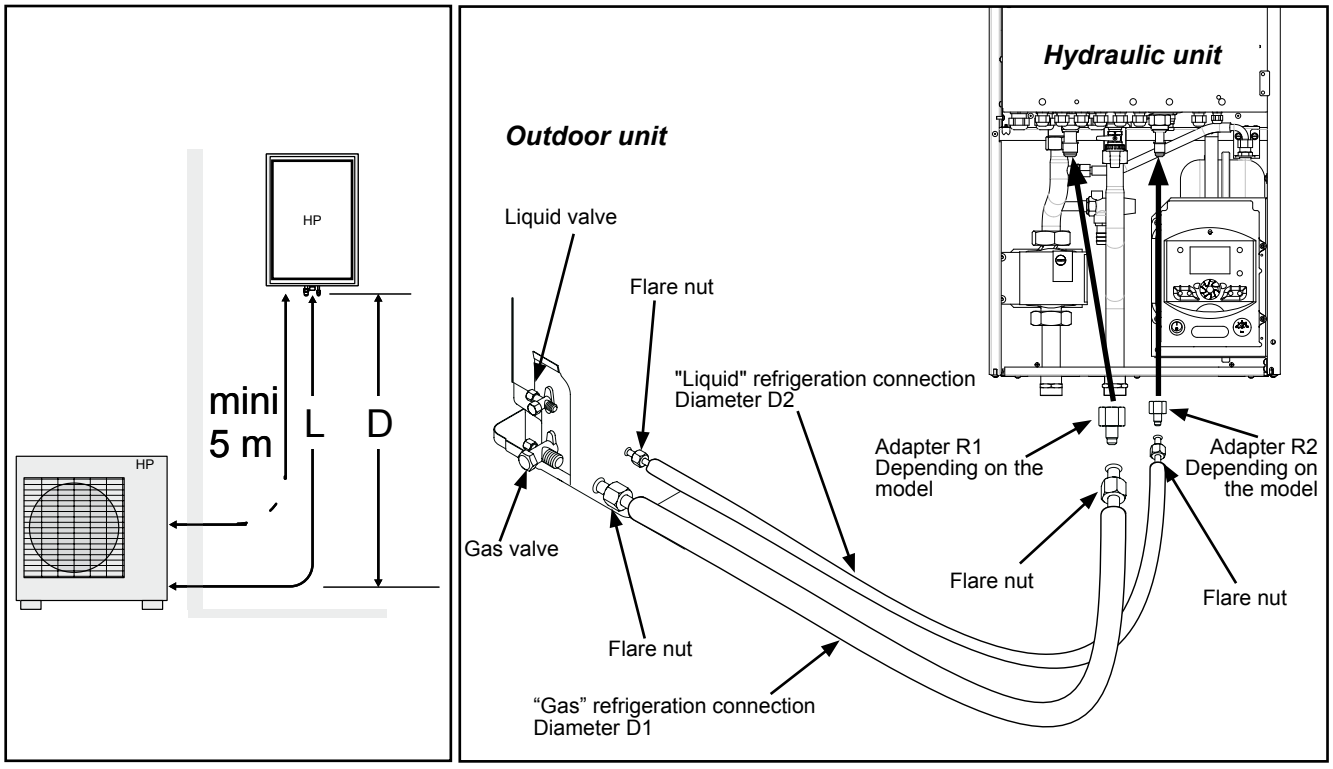


figure 16 - Connecting the flared connections (Pipe diameters and permissible lengths)

2.6.5 Shaping the refrigeration pipes

The refrigeration pipes must be shaped only on a bending machine or with a bending spring in order to avoid any risk of crushing or breaking them.

☞ **Warning !**

• Remove the insulation material locally to bend the pipes.

• Do not bend the copper to any angle over 90°.

• Never bend pipes more than 3 times in the same position otherwise traces of fracturing may appear (from strain-hardening the metal).

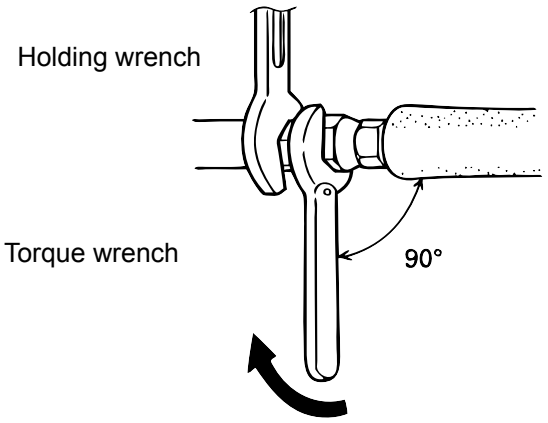
2.6.6 Connecting the flared connections

☞ **The small pipe must always be connected before the large one.**

☞ **Take particular care positioning the tube opposite its connector so as not to risk damaging the threads. A carefully aligned connector can be fitted easily by hand without much force being required.**

☞ **The refrigeration circuit is very sensitive to dust and humidity: check that the area around the connection is clean and dry before removing the plugs protecting the refrigeration connectors.**

- Depending on the case, connect an adapter (reducer) 1/4"- 3/8" or 1/2"- 5/8".
- Remove the plugs from the pipes and the refrigeration connections.
- Present the pipe to the flared connector and screw the nut by hand while holding the connector with a wrench until contact.
- **Warning !** Avoid positioning the Gas pipe in front of the pump.
- Comply with the indicated tightening torques (see figure 16).



Designation	*Tightening torque*
Flare nut 6,35 mm (1/4")	14 to 18 Nm
Flare nut 9,52 mm (3/8")	33 to 42 Nm
Flare nut 12,7 mm (1/2")	50 to 62 Nm
Flare nut 15,88 mm (5/8")	63 to 77 Nm
Plug (A) 3/8", 1/4"	20 to 25 Nm
Plug (A) 1/2"	25 to 30 Nm
Plug (A) 5/8"	30 to 35 Nm
Plug (B) 3/8", 5/8"	10 to 12 Nm
Plug (B) 1/2", 1/4"	12,5 to 16 Nm

figure 17 - Tightening torque

2.7 Filling the installation with gas

☞ **This operation is reserved for installers familiar with the legislation for handling refrigerants.**

☞ **Creating a vacuum with a vacuum pump is essential.**

☞ **Never use equipment used beforehand with any refrigerant other than a HFC.**

2.7.1 Example of commissioning procedure

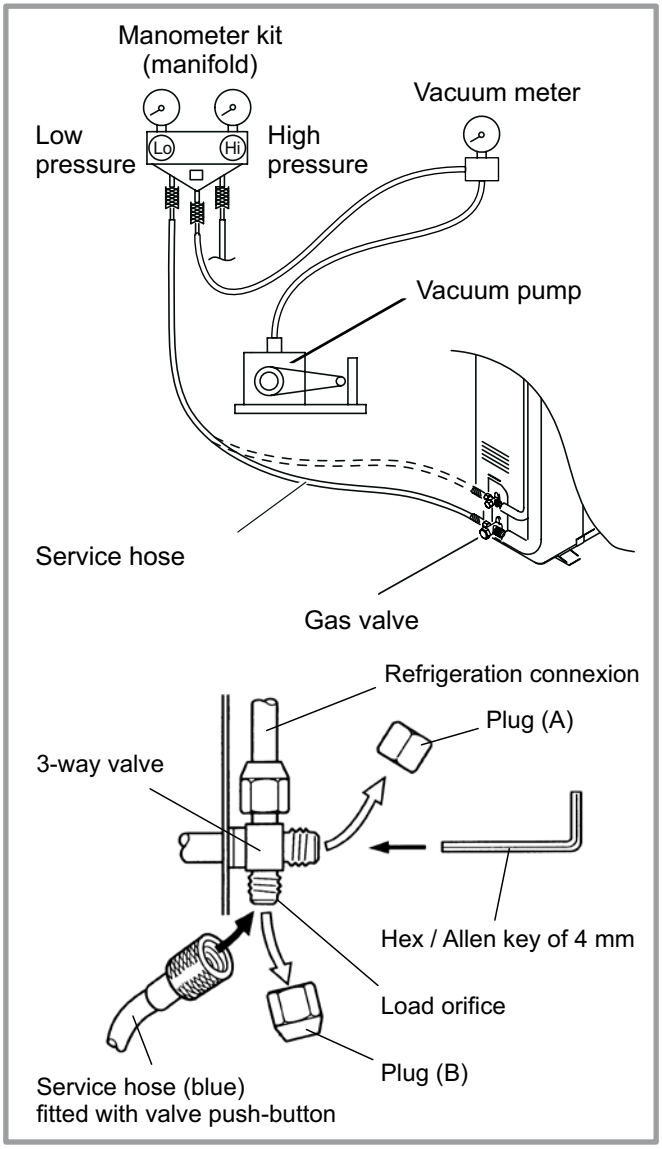


figure 18 - Extraction under vacuum and gassing

• **First seal test**

- Remove the protective plugs (**B**) from the charging hole (Schrader) in the gas valve (large diameter).
- Connect the hose to the manifold.
- Connect the bottle of nitrogen to the manifold.
- Pressurize the refrigerant circuit to 10 bar with nitrogen.
- Leave the circuit under pressure for half a day.
- Check that the pressure has not fallen.
- Look for and repair any leaks, and then recommence the test.
- Once the pressure has remained steady for a few hours, empty the nitrogen.

• **Creating a vacuum and filling the refrigeration connections with gas**

- Connect the vacuum pump to the manifold.
- Create a vacuum until the residual pressure in the circuit falls below 0,01 bar.
- Let the pump continue to operate for another 30 minutes after reaching the vacuum.
- Close the blue valve on the set of manometers and then stop the vacuum pump **without disconnecting any of the hoses in place**.
- Leave for at least half a day.

  If after this time the pressure has risen, there is a leak. Find and repair the leak and then recommence vacuum testing.

  When the pressure remains steady for a few hours after stopping the vacuum pump, the circuit can be considered airtight.
- Remove the access plugs (**A**) from the valve controls.
- First of all fully open the small valve and then the large one using a hex key (counterclockwise direction) without forcing excessively against the stop.
- Remove the blue hose rapidly.
- Refit the 2 plugs and tighten them to the recommended tightening torque (figure 16, page 19).

The outdoor unit does not contain any additional refrigerant, enabling the installation to be purged.

Flushing is strictly forbidden.

2.7.2 Sealing test

Once the refrigeration circuit has been gassed as described above, check that all the refrigeration connectors are gas-tigh (4 connectors).

The sealing test must be performed with an approved gas detector. If the flarings have been made correctly, there should be no leaks.

☞ **If there is a leak:**

- Bring the gas into the outdoor unit (pump down).
- Make the connection again.
- Repeat the commissioning procedure.

2.8 Hydraulic connecting

2.8.1 General

The connection must comply with good trade practice according to local building regulations.

The heating circulating pump is built into the hydraulic unit.

Connect the central heating pipes to the appliance, complying with the direction of circulation.

The pipe between the heat pump and the heat collector must be at least one inch in diameter (26x34 mm).

Calculate the diameter of the pipes according to the flow rates and the lengths of the hydraulic systems.

Tightening torque: 15 to 35 Nm.

Use union connectors to facilitate removing the hydraulic unit.

Preferentially use connection hoses to avoid transmitting noise and vibrations to the building.

Connect the drains from the drain valve and the safety valve to the main sewer system.

Reminder: Seal everything when fitting in accordance with prevailing trade practice for plumbing work:

- Use suitable seals (fibre seals, o-rings).
- Use Teflon tape or hemp.
- Use sealing paste (synthetic depending on the case).

The use of glycol is not necessary. If you are using a glycol/water mix, provide for an annual check on the quantity of glycol. Use monopropylene glycol only. **Never use monoethylene glycol.**

☞ **In certain installations, the presence of different metals can cause corrosion problems; the formation of metal particles and sludge in the hydraulic circuit is then seen.**

☞ **In this case, it is advisable to use a corrosion inhibitor in the proportions indicated by its manufacturer.**

- Please refer to the chapter "Treatment of domestic and heating water" in our price catalogue.

☞ **It is also necessary to ensure that the treated water does not become aggressive.**

2.8.2 Rinsing out the installation

Before connecting the hydraulic unit to the installation, rinse out the heating system correctly to eliminate any particles that may affect the appliance's correct operation.

Do not use solvents or aromatic hydrocarbons (petrol, paraffin, etc.).

In the case of an old installation, provide a sufficiently large decanting pot with a drain on the return from the boiler and at the lowest point in the system in order to collect and remove the impurities.

Add an alkaline product to the water and a dispersant.

Rinse the installation several times before filling it definitively.

2.8.3 Filling and purging the installation

Check the pipe fixings, the tightness of the connectors and the stability of the appliance.

Check the direction in which the water is circulating and that all the valves open.

Proceed to fill the installation.

Do not operate the circulating pump while filling. Open all the drain valves in the installation and the bleeder valve for the hydraulic unit (**P**) to remove the air contained in the conduits.

Close the drain and bleeder valves and add water until the pressure in the hydraulic circuit reaches 1 bars.

Check that the hydraulic circuit has been purged correctly.

Check there is not a leak.

After the "Start-up" stage (see page 28), once the machine has started, purge the hydraulic unit again (2 litres of water).

2.8.4 Connecting the Fan convector circuit

Heat pump > 11 kW: It must be installed on this circuit a buffer tank (minimum capacity: 50 liters).

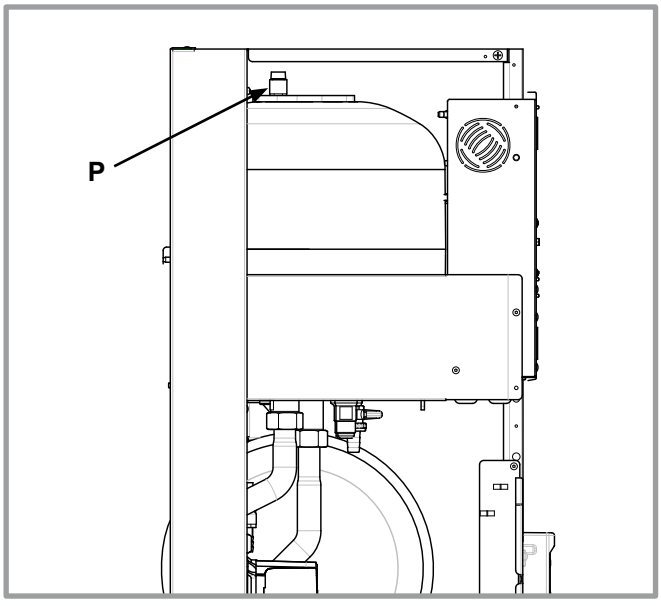
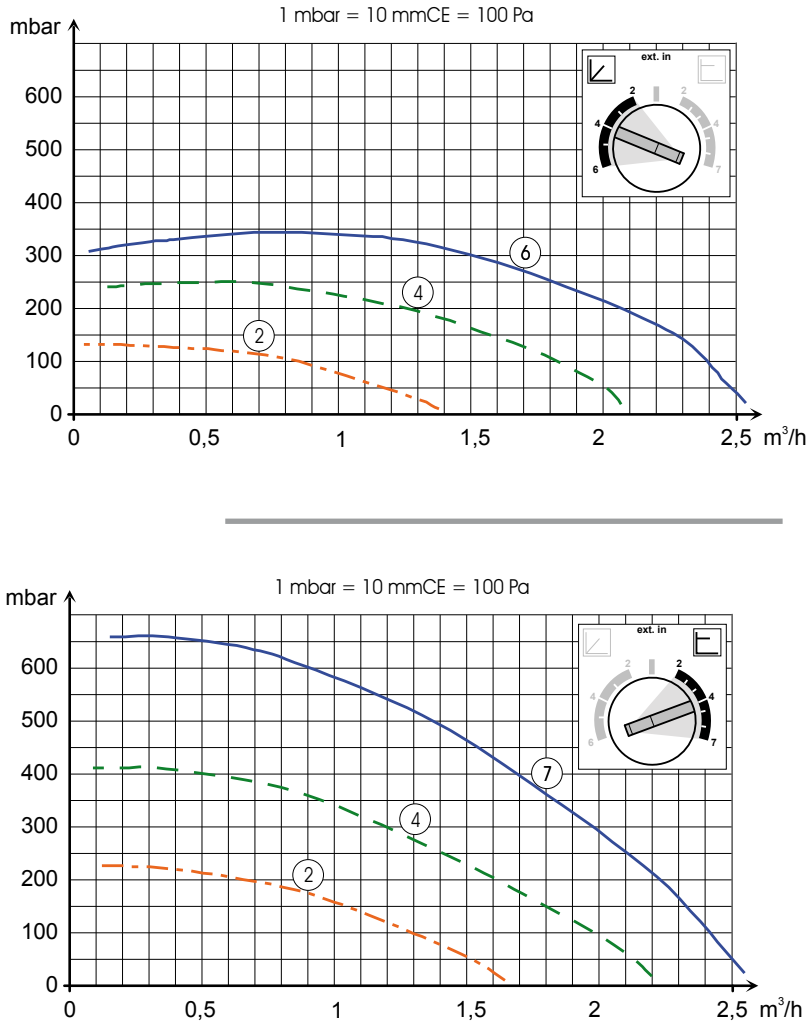


figure 19 - Hydraulic module bleeder valve

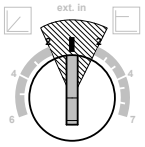
2.9 Heating circulation pump speed settings



Variable pressure

The circulator varies the manometric height according to the flowrate.

Recommended for a system equipped with **radiators** (particularly any system with thermostatic valves).



Do not use this area.

Constant pressure

The circulation pump maintains the manometric height constant whatever the flow rate.

Recommended for a system with constant pressure drop like **a floor heating system**.

figure 21 - Hydraulic pressures and flow rates available

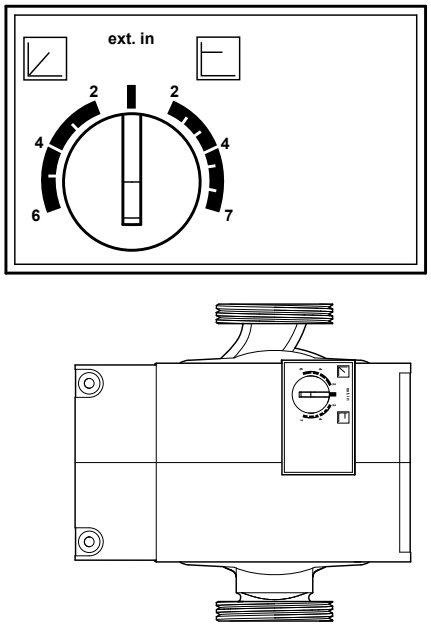


figure 20 - Pump dial

Circulation pump sticking or blocked:

If the motor is blocked, a start cycle is launched.

If the motor remains blocked it will be permanently stopped.

☞ **Cut off the electricity supply from the circulation pump for 30 seconds in order to release and authorise another start cycle.**

2.10 Electrical connections

Ensure that the general electrical power supply has been cut off before starting any repair work.

2.10.1 Characteristic of the electrical supply

The electrical installation must be conducted in accordance with the prevailing regulations.

The electrical connections must only be made when all the other fitting operations have been completed (fixing, assembly, etc.).

☞ **Warning !**

The contract concluded with the energy provider must be sufficient not only to cover the heat pump's power but also the combined sum of all the appliances likely to be operating at the same time. When the power is too low, check with your energy provider the value subscribed to in your contract.

Never use a socket for the power supply.

The heat pump must be supplied with power by special protected leads from the electric panel via 2-pole circuit breakers specially dedicated to the heat pump, Curve D for the outdoor unit, curve C for the electrical heating and domestic water back-ups (see tables on page 24).

The electrical installation must necessarily be equipped with a 30mA differential protection.

This appliance is designed to operate under a nominal voltage of 230 V +/- 10%, 50 Hz.

2.10.2 General remarks on electrical connections

It is essential to maintain the live-neutral polarity when making the electrical connections.

Tighten the screws on the terminal blocks perfectly. Unsufficient tightening can cause overheating, leading to breakdown or even a fire.

Tighten the cables using the cable glands to prevent the conductors from disconnecting accidentally.

Connection to Earth and Earth bonding continuity are essential.

• Connecting to screw terminals

Rigid wires (**A**)

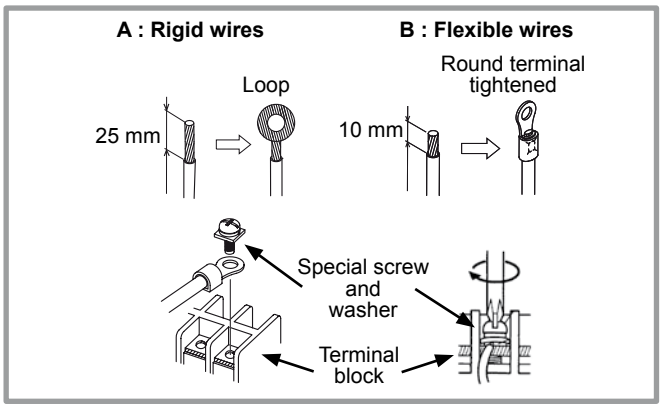
Rigid wires are always preferable for fixed installations, particularly in a building.

- Always select a wire that complies with the prevailing standards.
- Strip away around 25 mm from the end of the wire.
- With round end pliers, form a loop with a diameter corresponding to the tightening screws on the terminal.
- Tighten the terminal screw firmly onto the loop created.

Flexible wires (**B**)

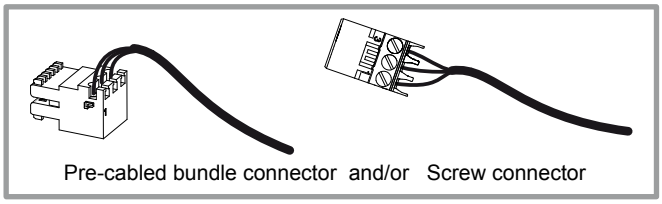
H07RNF type (or superior quality) flexible wire can be used with certain precautions:

- Strip away around 10 mm from the end of the wire.
- With tightening pliers, fit a round tag with a diameter corresponding to the terminal screw's diameter on the end of the wire.
- Tighten the tag firmly onto the terminal with a screwdriver. We strongly advise against using flexible wires without round tags.
- Always protect the cables when passing them through cable clamps with PVC protective conduit 0,5 to 1 mm thick.



• Connecting to regulation cards

- Remove the corresponding connector and make the connection.



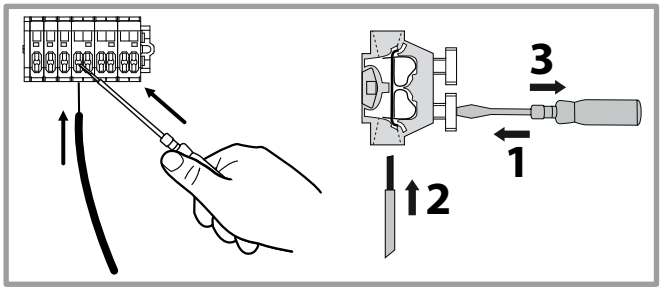
• Connecting to spring terminals

Rigid wires

- Strip away around 10 mm from the end of the wire.
- Slide the wire into the opening provided for this purpose.
- Push the spring with a screwdriver so that the wire enters the cage.
- Remove the screwdriver and then check that the wire is jammed in the cage by pulling on it.

Flexible wires

- Use the ends and proceed as before.



2.10.3 Overview of all the electrical connections

The wiring diagram for the hydraulic unit is shown in detail on figure 37, page 50.

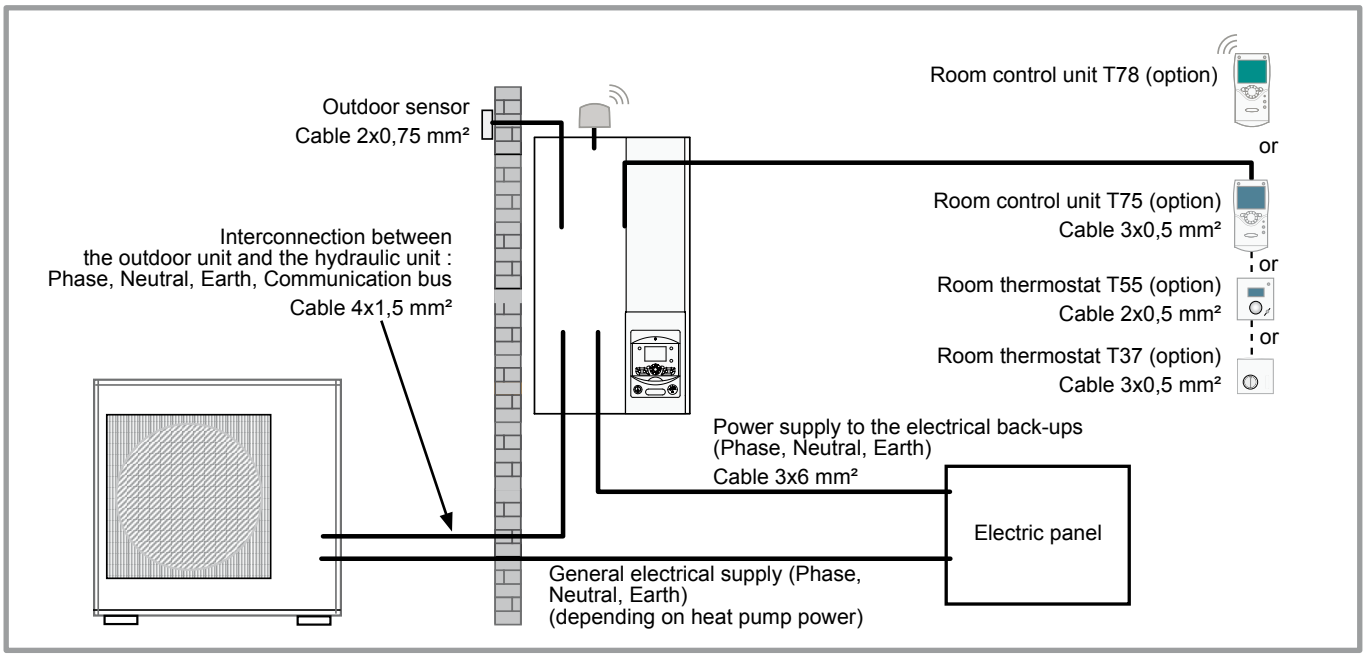


figure 22 - Overall layout of the electrical connections for a simple installation (1 heating circuit)

2.10.4 Cable section and protection rating

The cable sections are given for information purposes only and do not exempt the installer from checking that these sections correspond to the requirements and comply with the prevailing standards.

• Power supply to outdoor unit:

Heat pump (HP)		*Electricity supply 230 V - 50 Hz*	
Model	*Maxi. power absorbed*	*Cable connection (phase, neutral, earth)*	*Curve D circuit breaker size*
extensa 5 & 6	3450 W	3x1,5 mm²	16 A
extensa 8	3910 W	3x2,5 mm²	20 A
extensa 10	3910 W	3 x 2,5 mm²	20 A
extensa 13	4600 W	3 x 4 mm²	25 A
extensa 16	5980 W	3 x 6 mm²	32 A

• Interconnection between the outdoor unit and the hydraulic unit: The hydraulic unit is powered by the outdoor unit by means of a cable with 4 wires 1,5 mm² (phase, neutral, earth, communication bus).

• Power supply to the electrical back-ups (option):

The hydraulic unit contains two stages of electrical back-ups installed in a heat exchange tank.

Heat pump (HP)	*Electrical back-ups*		*Power supply to the electrical back-ups*	
Model	*Power*	*Nominal current*	*Cable connection (phase, neutral, earth)*	*Curve C circuit breaker size*
extensa 5, 6, 8, 10, 13 & 16	2x3 kW	26,1 A	3x6 mm²	32 A

☞ **Ensure that the general electrical power supply has been cut off before starting any repair work.**

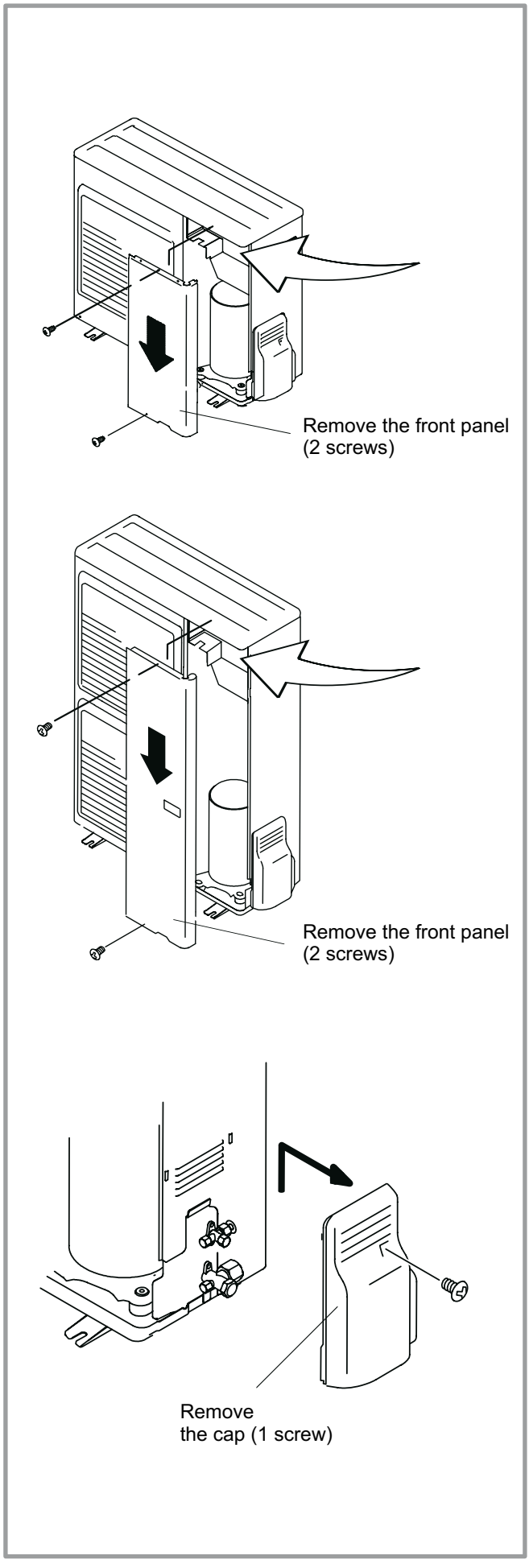


figure 23 - Access to outside unit's terminal block

2.10.5 Electrical connections on the outdoor unit side

Access to the connection terminals:

- Remove the front panel.
- Remove the cap (figure 22).
- Make the connections in accordance with the diagram figure 26, page 27.
- Use cable clamps to prevent the conductors from being disconnected accidentally.
- Fill in the space where the cables enter the outdoor unit with the insulating plate (figure 24).

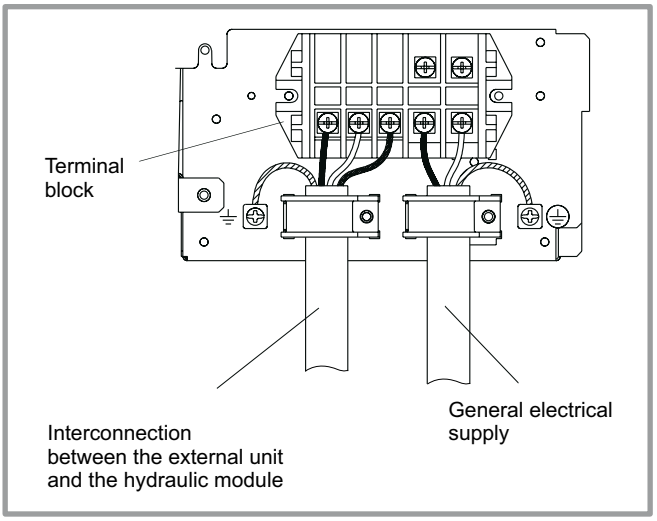


figure 24 - Connections to outside unit's terminal block

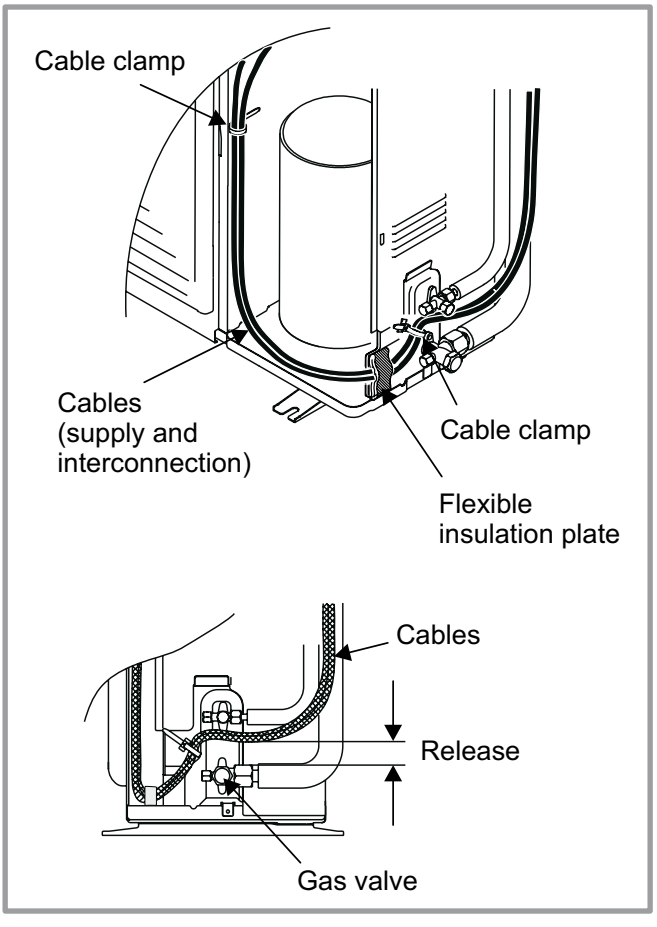


figure 25 - Finalisation of connection to outside unit

2.10.6 Electrical connections on the hydraulic unit side

Access to the connection terminals:

- Remove the front panel (2 screws) (figure 14, page 17).
- Open the power control box.
- Make the connections in accordance with the diagram figure 27.

Do not place the sensor lines and the sector supply lines in parallel in order to avoid interferences due to voltage points in the sector supply.

Ensure that all the electrical cables are housed in the spaces provided for this purpose.

• Interconnection between the outdoor unit and the hydraulic unit

Comply with the correspondence between the markings on the hydraulic unit's terminals and those on the outdoor unit when connecting the interconnection cables.

A connection error could cause the destruction of one or other of the units.

• Electrical back-ups (option)

If the heat pump is not installed with a boiler connection:

- Connect the electrical supply for the back-ups to the electrical panel.

• Boiler connection (option)

☞ **If the boiler connection option is used, the electric boost option must not be connected.**

- Please refer to the instructions supplied with the boiler connection kit.
- Please refer to the instructions supplied with the boiler.

• Second heating circuit

- Please refer to the instructions supplied with the second circuit kit or/and Regulation extension kit.

• DHW tank with electrical back-up heating (option)

If the installation is fitted with a DHW tank with electrical back-up heating:

- Please refer to the instructions supplied with the DHW kit.
- Please refer to the instructions supplied with the DHW tank.

• Contract with the power provider

The heat pump's operation can be controlled to suit special contracts (e.g. off-peak, day/night). In particular, domestic hot water (DHW) at Nominal temperature will be produced during the off-peak hours when electricity is cheaper.

- Connect the "Power Provider" contact to input EX2.
- Set the parameter (1620) to "Off-peak hours".

• 230V on input EX2 = "Peak hours" information activated.

• Power shedding or EJP (peak day removal)

Power limitation is intended to reduce electrical consumption when this is too high compared to the contract with the power provider.

- Connect the power limiting device to input EX1, the back-ups for the heat pump and the DHW stop in the event of over-consumption by the dwelling.

• 230 V on input EX1 = power limitation in progress.

• External faults the heat pump

Any component of carryforward of information (thermostat, pressure switch, etc.) may signal an external problem and stop the heat pump.

- Connect the external component to input EX3.

• 230 V on input EX3 = stoppage of heat pump (the system displays Error 369).

- In the case of a heated floor, insert the heated floor thermal safety in the binding of circulating heated floor.

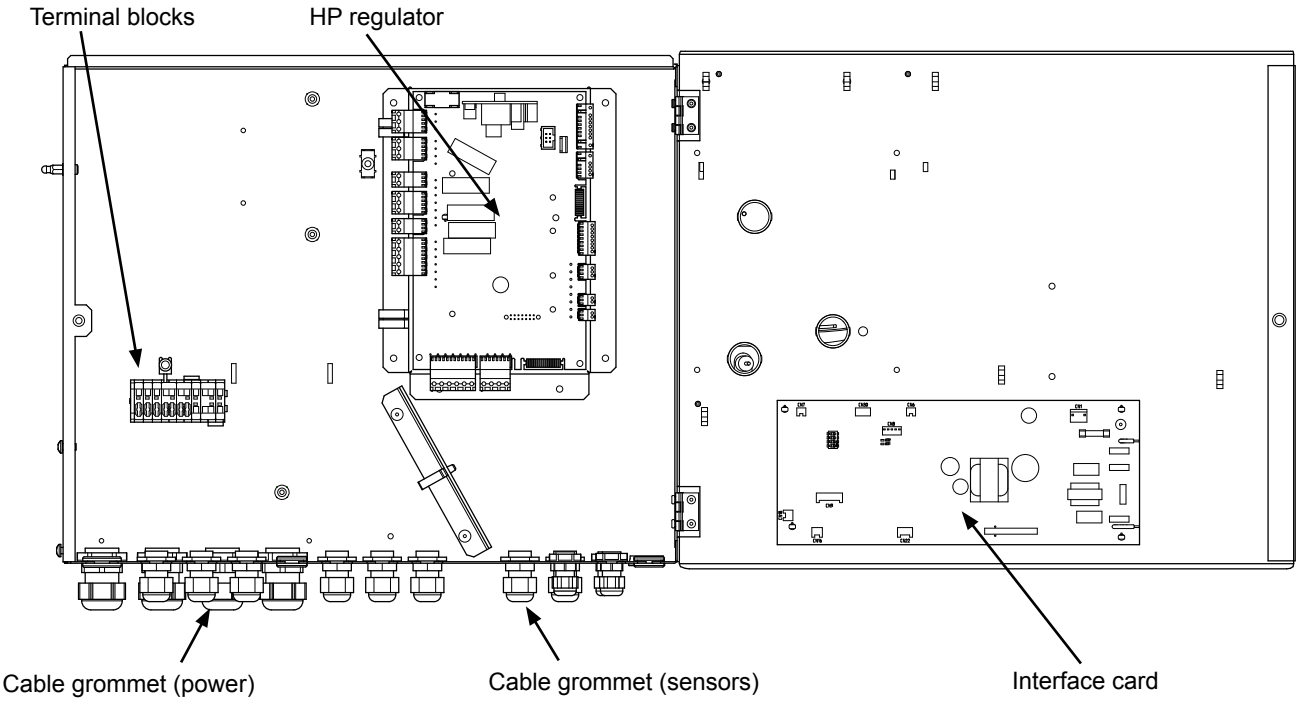


figure 26 - Access to hydraulic model electric box and description

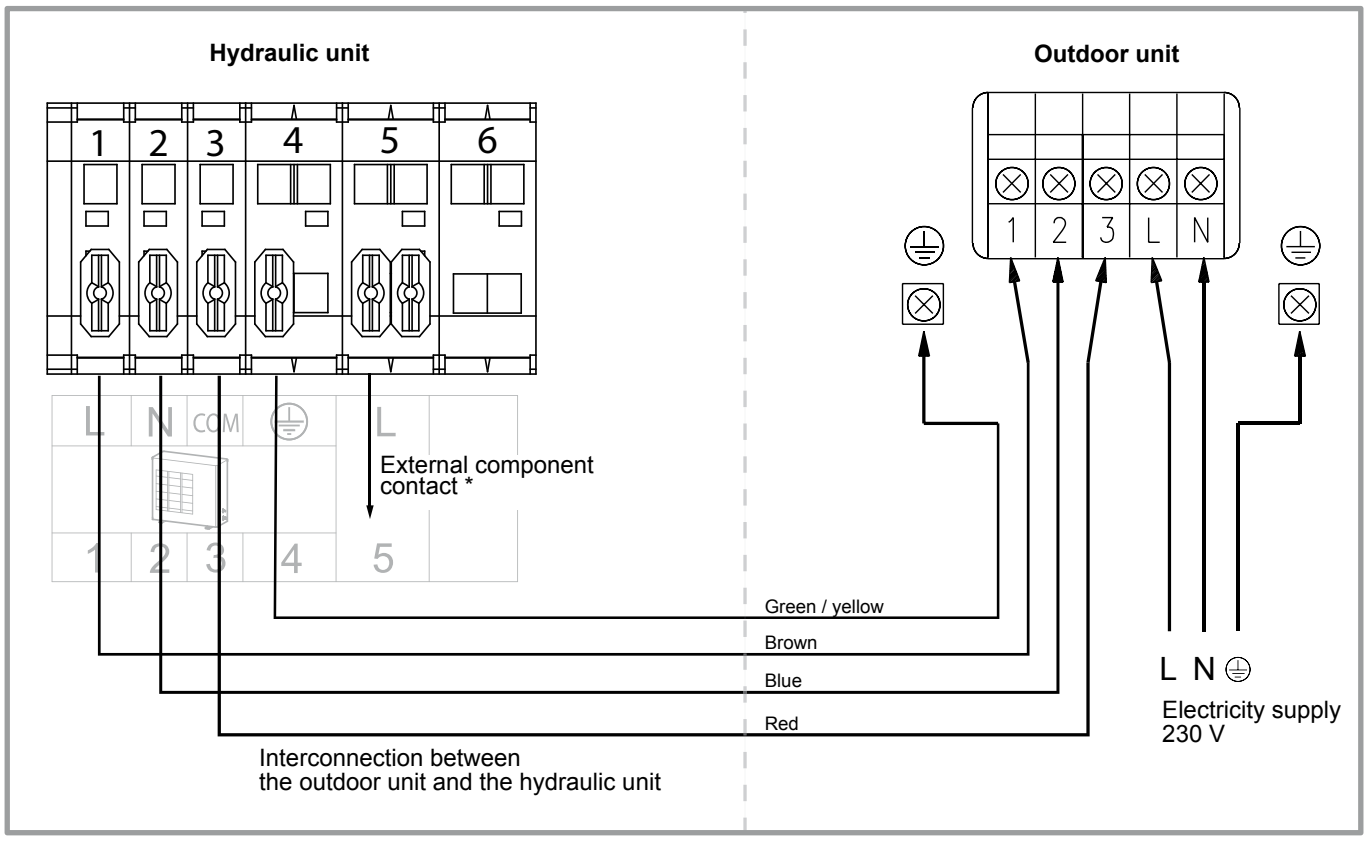


figure 27 - Connection to terminal block and power relays

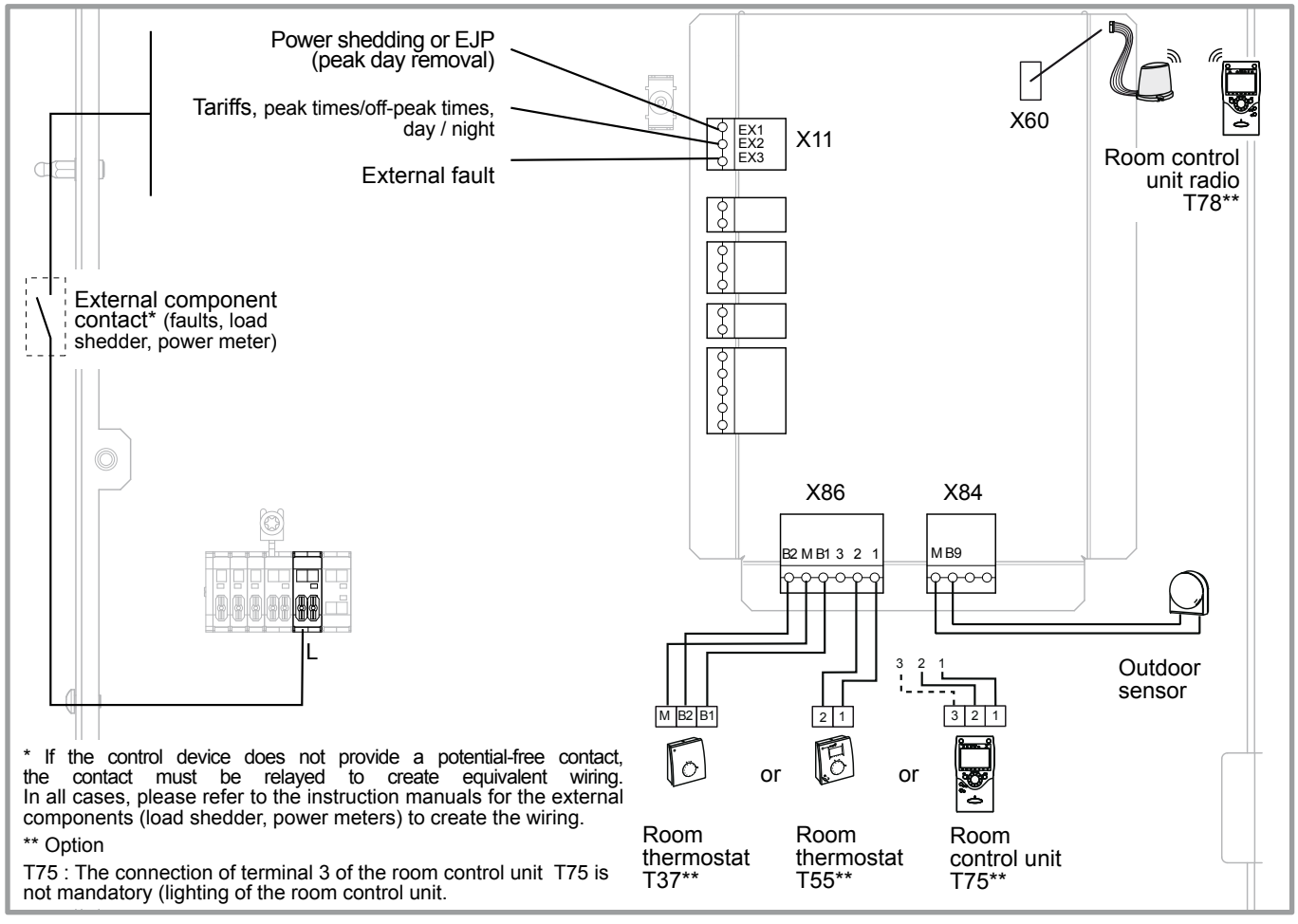


figure 28 - Connections to the heat pump regulator (accessories and options)

2.11 Outdoor sensor

The outdoor sensor is required for the heat pump to operate correctly.

Consult the fitting instructions on the packaging.

Place the sensor on the coldest part, generally the northern or north-eastern side.

In any case, it must not be exposed to the morning sun.

It must be installed so as to be easily accessible but at least 2,5 m from the floor.

It is essential that it avoid any sources of heat such as flues, the upper parts of doors and windows, proximity to extraction vents, the underneath of balconies and under-eave areas, which would isolate the sensor from variations in the outdoor air temperature.

- Connect the outdoor sensor to the connector **X84** (terminals **M** and **B9**) on the heat pump control board.

2.12 Room thermostat and/or room control unit

The room thermostat (room control unit) is optional.

Consult the fitting instructions on the packaging.

The sensor must be installed in the living room area on a very uncluttered wall, 1,5 m above the floor.

Avoid direct sources of heat (chimney/flue, television, cooking hobs), draughty areas (ventilation, door, etc.).

Air leaks in the seals in the constructions are often translated into cold air blowing through the electrical conduits. Lag the electrical conduits if there is a cold draught on the back of the IR sensor.

2.12.1 Installing a room sensor

• Room thermostat T37

- Connect the sensor to the **X86** connector of the heat pump's regulator board using the connector provided (terminals **B2**, **M** and **B1**).

☞ **In the case of 2 heating circuits,** The sensor is connected to the card which corresponds to the regulated heating circuit.

• Room thermostat T55

- Connect the sensor to the **X86** connector of the heat pump's regulator board using the connector provided (terminals **1**, **2**).

2.12.2 Installing a room control unit

• Room control unit T75

- Connect the sensor to the **X86** connector of the heat pump's regulator board using the connector provided (terminals **1**, **2** and **3**).

• Room control unit radio T78

- Connect the wireless room control unit radio to the connector **X60**.

2.13 Commissioning

- Close the installation's main circuit breaker.

  On first commissioning (or in winter), in order to allow the compressor to pre-heat, engage the installation's main circuit breaker (power supply to the outdoor unit) some hours before starting up the tests.

- Engage the start/stop switch.

  To ensure that inputs EX1, EX2 and EX3 operate correctly: Check that the live-neutral polarity of the electrical supply is correct.

When the power is switched on and every time that the ON/OFF button is switched off and then switched on again, the outdoor unit will take approximately 4 minutes to start up, even if the setting is requesting heating.

The display can show error 370 when the appliance (re)starts. Do not be concerned, the communication between the outdoor and hydraulic unit will re-establish itself in a few moments.

During the regulator initialisation phase, the display shows all the symbols and then "Data, update" and then "State heat pump"

- Make all the specific adjustments to the setting. (Installation configuration):

- Press OK.

- Hold down the key i for 3s and select the level of access used with the aid of the knob.

- Confirm with the key OK.

- Parameter the heat pump's setting (Consult the settings' list page 34).

On commissioning (or the case of error 10), the electrical back-up heaters are liable to start up even if the outdoor temperature at the time is above the heaters' trigger temperature.

The regulating system uses an average initial outdoor temperature of 0°C and requires some time to update this temperature.

To avoid this situation, the sensor must be connected correctly. Re-initialise parameter 8703 (commissioning level, consumer diagnostic menu).

2.14 Configuring room thermostat T55

To configure the room thermostat and connect it to the appropriate heating zone:

- Hold down the presence key for more than 3 seconds. The room thermostat displays RU and a number flashes.
- Turn the wheel to choose the zone (1, 2).
- **If the installation is fitted with 2 room thermostats,**
- **First connect one room thermostat and configure it in zone 2,**
- **Then connect the other room thermostat and configure it as default in zone 1.**
- Hold down the presence key; the room thermostat displays P1 and a flashing number. 1: Automatic recording: a correction of the setting with the button is adopted without any particular confirmation (timeout) or by pressing the mode key. 2: Recording with confirmation: a correction of the setting with the button is not adopted until the mode key is pressed.
- Press the presence key again; the room thermostat displays P2 and a flashing number.

0: OFF: all the operating elements are engaged.

1: ON: the following operating elements are locked:

- Switching over the heating circuit's operating mode,
- Adjusting the comfort setting,
- Changing the operating level.

The room thermostat displays OFF for 3 seconds when a locked button is pressed.

2.15 Configuring room control unit (T75 or T78)

During commissioning, after an initialisation period of approx. 3 minutes, the user's language must be set:

- Press OK.
- Choose menu "Operator section".
- Choose language.
- Select the language (**English**, Deutsch, Français, Italiano, Nederlands, Español, Português, Dansk…)..

☞ **In the case of 2 heating circuits:**

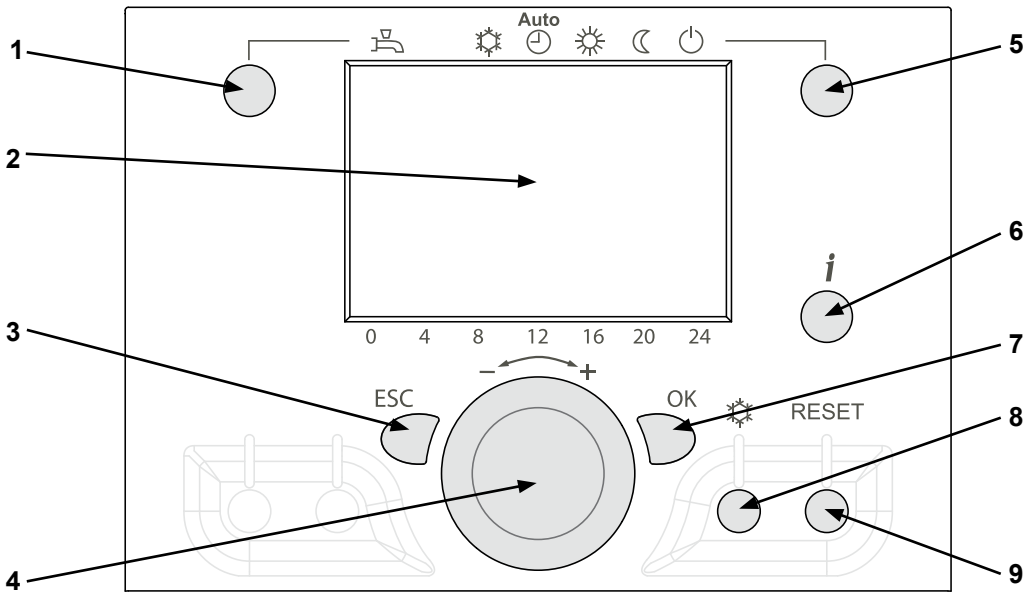
- Choose the allocation of the room control unit (room appliance 1 or 2…) line **40*** (see page 34).
- According to the allocation selected check and, if necessary, modify the settings for lines **42***, **44***, **48*** (see page 34).

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
40	I	Use as...	Room appliance 1, 2, P, User interface 1, 2, P, Service appliance		**Room appliance 1**
		This line regulates the use of the room control unit. Depending on how it is used, other settings will be necessary (lines 42, 44, 48).			
42	I	Appliance allocation 1	Heating circuit 1, Heating circuit 1 & 2, Heating circuit 1 & P, All the heating circuits		**Heating circuit 1**
44	I	Operation HC2 (command HC2)	Commonly with HC1, Independent		**Commonly with HC1**
		This function enables you to choose whether you wish the room thermostat (as an option) to act on both zones or just a single zone.			
48	I	Occupancy control switch function	Without, Heating circuit 1, Heating circuit 2, Common		

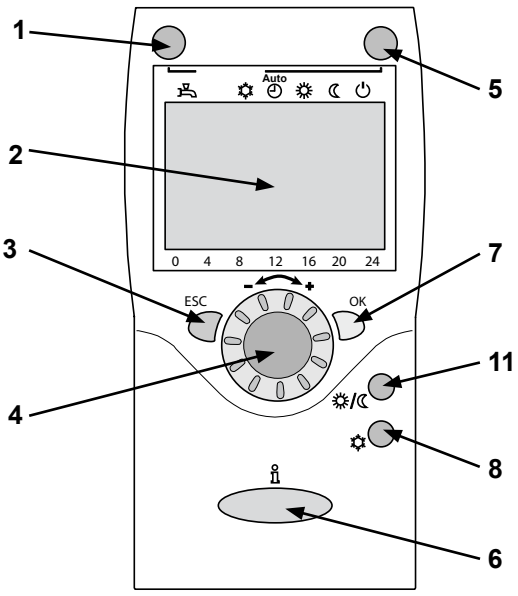
**** These parameter lines are only accessible from the room control unit.***

3 Regulation system

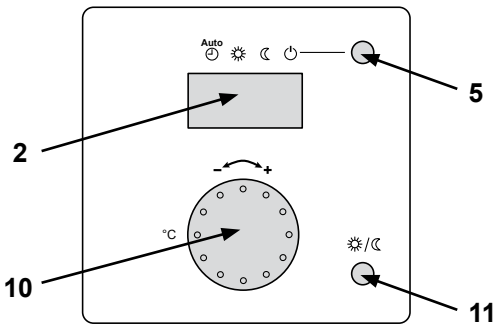
3.1 User interface, Room control unit (option) and Room thermostat (option)



User interface



Room control unit T75 / T78



Room thermostat T55

figure 29 -

Ref.	*Function*	*- Definitions*
1	Selecting of the DHW operating mode (Domestic hot water) On Off	- If the installation is fitted with a DHW tank. - On: Production of DHW according to the time program. - Off: Preparing the domestic hot water for stopping with the anti-frost function active. - Manual start button: Hold down the DHW key for 3 seconds. Switch from "reduced" to "comfort" until the next time the ECS timer switches over.
2	Digital display	- Operating control. Readout of the current temperature, of the heating mode and of any faults . - View the settings.
3	Exit "ESC"	- Quit the menu.
4	Navigation and setting	- Selecting the menu. - Setting parameters. - Adjusting the ambient temperature setpoint.
5	Selecting the heating mode	- Heating operating according to the heating programme (Summer/winter mode switchover is automatic). - Constant comfort temperature. - Constant reduced temperature. - Stand-by mode with anti-frost protection (Provided that the heat pump's electrical power supply is not interrupted).
6	Information display	- Various data (please see page 56). - Reading error codes (please see page 52). - Information concerning maintenance, special mode.
7	Confirm "OK"	- Input into the selected menu. - Confirmation of the parameter settings. - Confirmation of the adjustment to the comfort temp. setting.
8	Selecting cooling mode	- If the installation is fitted with the cooling kit: - Cooling operating according to the heating programme (Summer/winter mode switchover is automatic).
9	RESET button (Hold down the "RESET" key for 3 sec).	- Reinitialising the parameters and cancelling error messages. **Do not use during normal operation.**
10	Control knob	- Adjusting the ambient temperature setpoint.
11	Presence key	- Comfort / Reduced switchover.

3.2 Description of the display

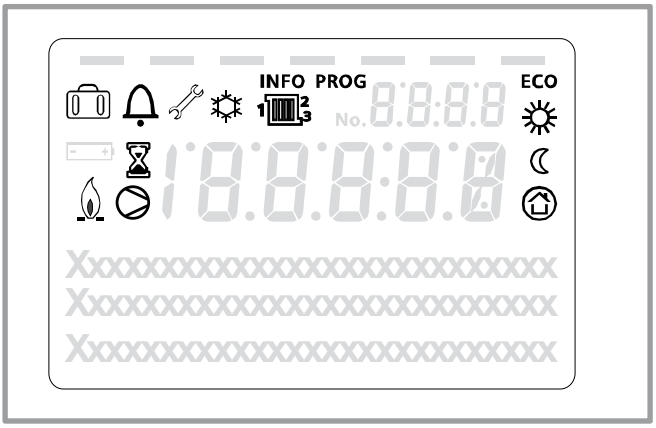


figure 30 - User interface display

Symbols	Definitions
	- Heating mode active with reference to the heating circuit.
	- Heating in comfort mode.
	- Heating in reduced mode.
	- Heating in "standby" mode (freeze protection).
	- Cooling mode active.
	- Holiday mode activated.
	- Process in progress.
	- Compressor operation.
	- Burner operation.
	- Default message.
	- Service / Special operation.
INFO	- Information level activated.
PROG	- Programme activated.
ECO	- ECO mode activated (Heating temporarily stopped).
	- Hour / Parameter number / Setpoint value.
	- Room temperature / Setpoint value.
	- Setpoint information / Parameter Information.

3.4 Temperature control

The heat pump's operation is subject to the temperature control.

The set temperature for the water in the heating circuit is adjusted according to the outdoor temperature.

The temperature control may be chosen automatically by the machine (self-adaptation) or set manually by the installer (Parameters 720, 721 and 726).

If there are thermostatic valves on the installation, these must be fully open or adjusted for higher than the normal set temperature.

3.4.1 Set to

During installation, the temperature control must be parametered according to the heat emitters and the dwelling's insulation.

The temperature control' curves (figure 31) refer to an ambient setting of 20°C.

The slope of the temperature control (parameter 720) determines the impact of the variations in the outdoor temperature on the initial heating temperature variations.

The higher the slope, the more a slight reduction in the outdoor temperature causes a significant increase in the flow water temperature in the heating circuit.

The off-set in the temperature control (parameter 721) modifies the initial temperature of all the curves, without modification of the slope (figure 32).

The corrective actions in the case of any inconvenience are detailed in the table (figure 33).

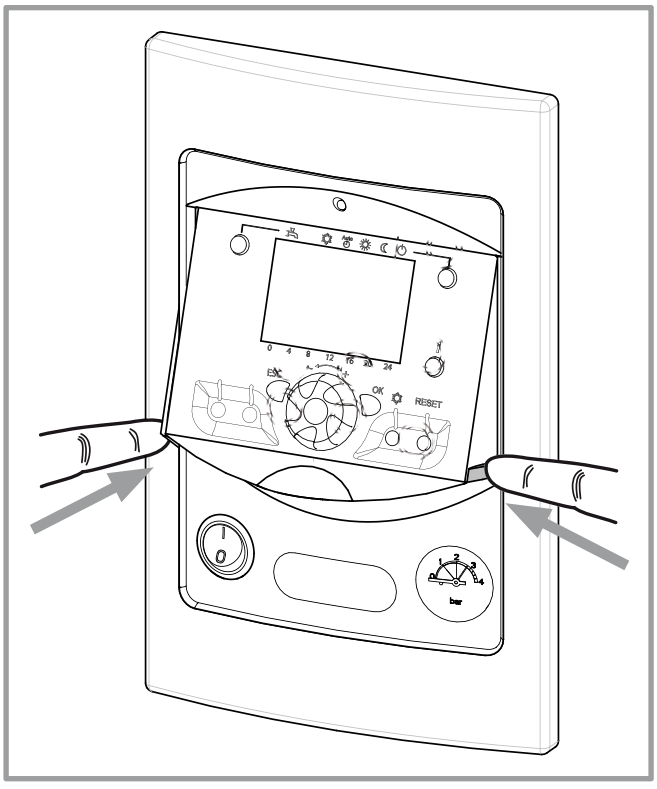


figure 31 - Closing the display

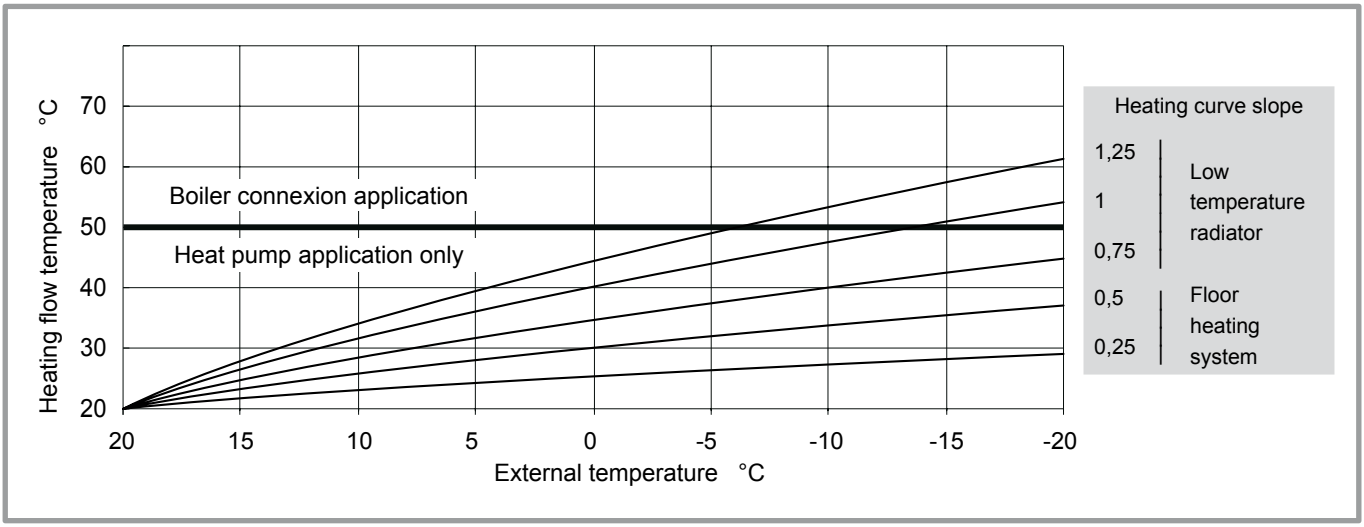


figure 32 - Heating curve slope (line 720)

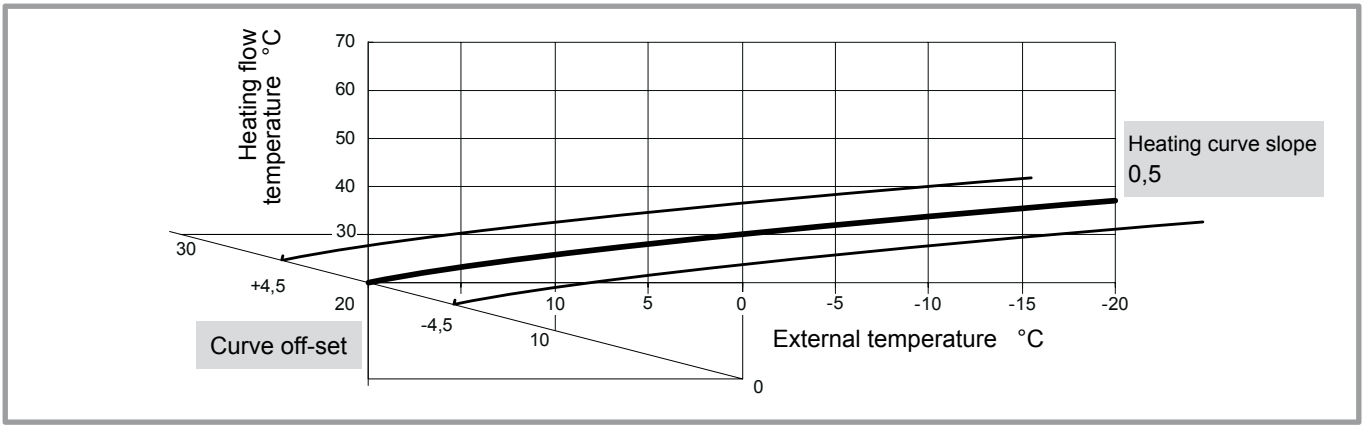


figure 33 - Off-set of the heating curve (line 721)

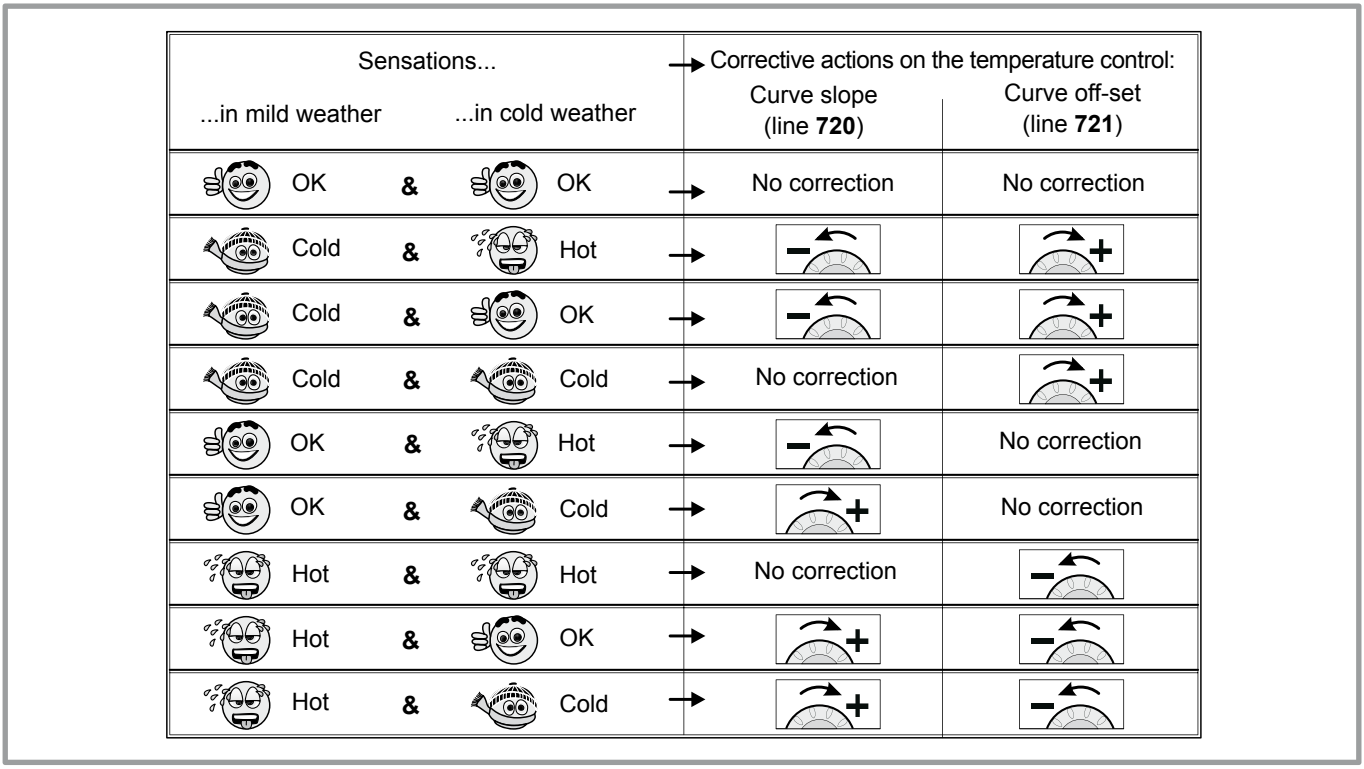


figure 34 - Corrective actions in the case of discomfort

3.5 Parametering the setting

3.5.1 General

Only the parameters accessible to levels:

U - End user

I - Commissioning level

S - Engineer level

Are described in this document.

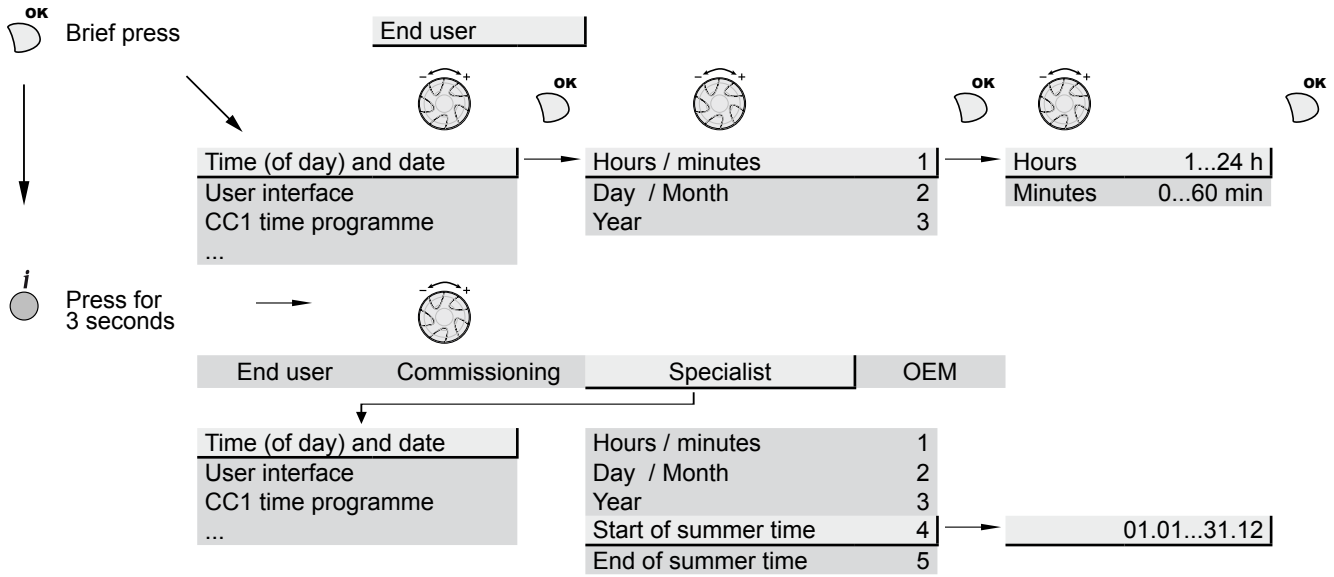
The access levels are specified in the second column of the table by means of the letters **U**, **I** and **S**.

The OEM parameters are not described and require a manufacturer's access code.

3.5.2 Setting parameters

- Choose the desired level.
- Scroll the menu list.
- Choose the desired menu.
- Scroll the function lines.
- Choose the desired line.
- Adjust the parameter
- Check the setting by pressing **OK**.
- To return the menu, press **ESC**.

If no setting is made for 8 minutes, the screen returns automatically to the basic display.



3.5.3 List of function lines (settings, diagnosis, status)

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
Date and time					
1	**U**	Hours / Minutes	00:00... 23:59	1	
2	**U**	Day / Month	01.01... 31.12	1	
3	**U**	Year	1900... 2099	1	
5	**S**	Start of Summer time (Day / Month)	01.01... 31.12	1	**25.03**
6	**S**	End of Winter time (Day / Month)	01.01... 31.12	1	**25.10**
		The change of hour will appear at 3:00 first Sunday after the regulated date.			
User interface					
20	**U**	Language	English, Français, Italiano, Nederlands...		**English**
22	**S**	Info	Temporary, Permanent		**Temporary**
26	**S**	Operation locking	On, Off		**Off**
27	**S**	Programming locking	Off, On		**Off**
28	**I**	Direct setting Saving...	...automatic, ...with confirmation		**...with confirmation**
29	**I**	Temperature units Pressure units	°C, °F bar, psi		**°C** **bar**
70	**S**	Display software version			

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
Heating time programme, circuit 1					
500	**U**	Pre-selection (Day / Week)	Mon-Sun, Mon-Fri, Sat-Sun, Monday, Tuesday, …		**Mon-Sun**
501	**U**	1st phase On (start)	00:00... --:--	10 min	**6:00**
502	**U**	1st phase Off (end)	00:00... --:--	10 min	**22:00**
503	**U**	2nd phase On (start)	00:00... --:--	10 min	**--:--**
504	**U**	2nd phase Off (end)	00:00... --:--	10 min	**--:--**
505	**U**	3rd phase On (start)	00:00... --:--	10 min	**--:--**
506	**U**	3rd phase Off (end)	00:00... --:--	10 min	**--:--**
515	**U**	Copy			
516	**U**	Standard values, Circuit 1	No, Yes		**No**
		Yes + OK: The standard values memorised in the regulator replace and cancel the customised heating programmes. Your customised settings are therefore lost.			
Heating time programme, circuit 2					
		Only with the 2nd circuit kit option.			
520	**U**	Pre-selection (Day / Week)	Mon-Sun, Mon-Fri, Sat-Sun, Monday, Tuesday, …		**Mon-Sun**
521	**U**	1st phase On (start)	00:00... --:--	10 min	**6:00**
522	**U**	1st phase Off (end)	00:00... --:--	10 min	**22:00**
523	**U**	2nd phase On (start)	00:00... --:--	10 min	**--:--**
524	**U**	2nd phase Off (end)	00:00... --:--	10 min	**--:--**
525	**U**	3rd phase On (start)	00:00... --:--	10 min	**--:--**
526	**U**	3rd phase Off (end)	00:00... --:--	10 min	**--:--**
535	**U**	Copy			
536	**U**	Standard values, Circuit 2	No, Yes		**No**
		Yes + OK: The standard values memorised in the regulator replace and cancel the customised heating programmes. Your customised settings are therefore lost.			
Time programme 4 / DHW					
		If the installation is fitted with the DHW kit.			
560	**U**	Pre-selection (Day / Week)	Mon-Sun, Mon-Fri, Sat-Sun, Monday, Tuesday, …		**Mon-Sun**
561	**U**	1st phase On (start)	00:00... --:--	10 min	**00:00**
562	**U**	1st phase Off (end)	00:00... --:--	10 min	**05:00**
563	**U**	2nd phase On (start)	00:00... --:--	10 min	**14:30**
564	**U**	2nd phase Off (end)	00:00... --:--	10 min	**17:00**
565	**U**	3rd phase On (start)	00:00... --:--	10 min	**--:--**
566	**U**	3rd phase Off (end)	00:00... --:--	10 min	**--:--**
575	**U**	Copy			
576	**U**	Standard values	No, Yes		**No**
		Yes + OK: The standard values memorised in the regulator replace and cancel the customised heating programmes. Your customised settings are therefore lost.			

Line		Function	Setting range or display	Setting increment	Basic setting
Time programme 5 / Cooling					
		If the installation is fitted with the cooling kit (Only with the cooling kit option).			
600	**U**	Pre-selection (Day / Week)	Mon-Sun, Mon-Fri, Sat-Sun, Monday, Tuesday, …		**Mon-Sun**
601	**U**	1st phase On (start)	00:00... --:--	10 min	**8:00**
602	**U**	1st phase Off (end)	00:00... --:--	10 min	**20:00**
603	**U**	2nd phase On (start)	00:00... --:--	10 min	**--:--**
604	**U**	2nd phase Off (end)	00:00... --:--	10 min	**--:--**
605	**U**	3rd phase On (start)	00:00... --:--	10 min	**--:--**
606	**U**	3rd phase Off (end)	00:00... --:--	10 min	**--:--**
615	**U**	Copy			
616	**U**	Standard values	No, Yes		**No**
		Yes + OK: The standard values memorised in the regulator replace and cancel the customised heating programmes. Your customised settings are therefore lost.			
Holidays, heating circuit 1 (For the Holiday program is active, the heating mode should be on AUTO).					
641	**U**	Preselection	Period 1 to 8		**Period 1**
642	**U**	Date holidays start (Day / Month)	01.01... 31.12	1	
643	**U**	Date holidays end (Day / Month)	01.01... 31.12	1	
648	**U**	Heating schedule during the holidays	Frost protection, Reduced		**Frost protection**
Holidays, heating circuit 2 (For the Holiday program is active, the heating mode should be on AUTO).					
		If the installation consists of 2 heating circuits (Only with the 2nd circuit kit option).			
651	**U**	Preselection	Period 1 to 8		**Period 1**
652	**U**	Date holidays start (Day / Month)	01.01... 31.12	1	
653	**U**	Date holidays end (Day / Month)	01.01... 31.12	1	
658	**U**	Heating schedule during the holidays	Frost protection, Reduced		**Frost protection**
Heating adjustment, circuit 1					
710	**U**	Comfort ambient temperature setpoint	Reduced temperature... 35 °C	0,5 °C	**20 °C**
712	**U**	Reduced ambient temperature setpoint	Frost-free temp… Comfort temperature	0,5 °C	**19 °C**
714	**U**	Frost-free ambient temperature setpoint		0,5 °C	**8 °C**
716	**S**	Maximum comfort setpoint	20 °C... 35 °C	1 °C	**28 °C**
720	**I**	Heating curve slope (figure 31, page 33)	0,1... 4	0,02	**0,5**
721	**I**	Off-set of the heating curve (figure 32, page 33)	-4,5 °C... 4,5 °C	0,5 °C	**0 °C**
726	**I**	Auto-adaptation of the heating curve	Off, On		**Off**
730	**I**	Summer / Winter heating limits	8 °C... 30 °C	0,5 °C	**18 °C**
		When the average of the outside temperatures over the past 24 hours reaches 18°C, the regulator switches off the heating (as an economy measure). During summer mode, the display shows "Eco". This function is only active in automatic mode.			
732	**S**	Limit of daily heating	-10 °C... 10 °C	1 °C	**-3 °C**
		This function enables you partially to offset the automatic summer / winter switchover during the intermediate seasons. Increasing the value delays the switchover to summer regime. Decreasing the value advances the switchover to summer regime. This function is only active in automatic mode.			
740	**S**	Flow temp setpoint min (for fan convector)	8 °C... Flow temp setpoint max	1 °C	**8 °C**

Line		Function	Setting range or display	Setting increment	Basic setting
741	S	Flow temp setpoint max	Flow temp setpoint min... 70 °C	1 °C	**55 °C**
		Floor heating system = 50 °C / Radiators = 65 °C. **Important Note :** Maximum temperature limitation is not a safety function as required by ground heating.			
750	S	Influence of the ambient temperature	1%... 100%	1%	**50%**
		If the installation is fitted with a room thermostat: This function enables you to choose the ambient temperature's influence on the setting. If no value is entered, the setting is made based on the temperature control. If the parameter is set at 100%, the setting is only based on the ambient temperature.			
780	S	Quick setback	Off, Down to reduced setpoint, Down to frost prot setpoint		**Down to reduced setpoint**
790	S	Maximum optimisation on switch-on (Early start to switch to the comfort setting.)	0... 360 min	10 min	**180 min**
791	S	Maximum optimisation on switch-off (Early stop to switch from the comfort setting to the reduced setting.)	0... 360 min	10 min	**60 min**
800	S	Start of increase in reduced functioning mode	-30... 10 °C	1 °C	**--**
801	S	End of increase in reduced functioning mode	-30... 10 °C	1 °C	**-5 °C**
830	S	Mixer valve boost	0... 50 °C	1 °C	**0 °C**
834	S	Servomotor travel time	30... 873 s	1 s	**240 s**
850	I	Floor controlled drying (figure 34)			**Arrêt**
		- Off: Early interruption of the current programme, programme inactive. - Operational heating. - Heating ready for occupation. - Operational heating + ready heating. - Ready heating + operational heating. - Manual: Manual mode enables you to programme your own concrete slab drying time.The function ends automatically after 25 days.			
851	I	Manual floor drying setpoint (if line 850 = manual)	0... 95 °C	1 °C	**25 °C**
		This function enables you to set the custom concrete slab drying temperature. This temperature remains fixed. The concrete slab-drying programme stops automatically after running for 25 days.			
856	I	Current drying day	0... 32		
857	I	Terminated drying days	0... 32		
900	S	Change of regime	None, Protection mode, Reduced, Comfort, Automatic	1	**Protection mode**
		Operating mode at end of concrete slab drying period.			

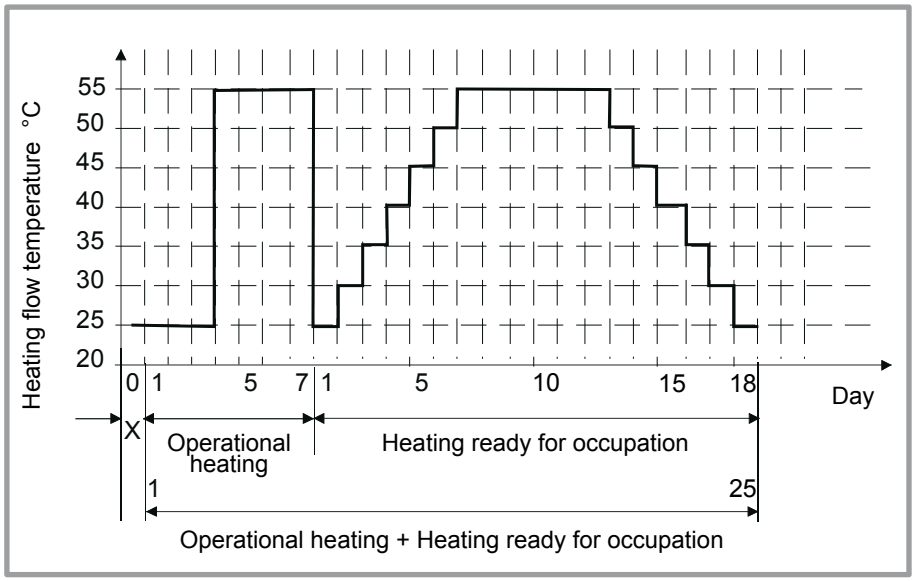


figure 35 - Diagram of the concrete slab drying programmes

☞ **Please comply with the standards and instructions of the manufacturer of the building ! A good performance of this function is only possible with an installation correctly implemented (hydraulic, electricity and adjustments) ! This function can be stopped by anticipation when setting the adjustment on "Stop".**

Line		Function	Setting range or display	Setting increment	Basic setting
Heating adjustment, Circuit 2					
		Only with the 2nd circuit kit option (If the installation consists of 2 heating circuits).			
1010	**U**	Comfort ambient temperature setpoint	Reduced temp... Maximum comfort setpoint	0,5 °C	**20 °C**
1012	**U**	Reduced ambient temperature setpoint	Frost-free temp… Comfort temperature	0,5 °C	**19 °C**
1014	**U**	Frost-free ambient temperature setpoint	4°C… Reduced temperature	0,5 °C	**8 °C**
1016	**S**	Maximum comfort setpoint	Comfort temp... 35 °C	1 °C	**28 °C**
1020	**I**	Heating curve slope (figure 31, page 33)	0,1... 4	0,02	**0,5**
1021	**I**	Off-set of the heating curve (figure 32, page 33)	-4,5... 4,5 °C	0,5 °C	**0 °C**
1026	**S**	Adaptation of the heating curve	Off, On		**Off**
1030	**I**	Summer / Winter heating limits	8... 30 °C	0,5 °C	**18 °C**
		When the average of the outside temperatures over the past 24 hours reaches 18°C, the regulator switches off the heating (as an economy measure). During summer mode, the display shows "Eco". This function is only active in automatic mode.			
1032	**S**	Limit of daily heating	-10... 10 °C	1 °C	**-3 °C**
		This function enables you partially to offset the automatic summer/winter switchover during the intermediate seasons. Increasing the value delays the switchover to summer regime. Decreasing the value advances the switchover to summer regime. This function is only active in automatic mode.			
1040	**S**	Flow temp setpoint min (for fan convector)	8... 70 °C	1 °C	**8 °C**
1041	**S**	Flow temp setpoint max	8... 70 °C	1 °C	**55 °C**
		Floor heating system = 50 °C / Radiators = 65 °C. **Important Note :** Maximum temperature limitation is not a safety function as required by ground heating.			
1050	**S**	Influence of the ambient temperature	1 %... 100 %	1 %	**50 %**
		If the installation is fitted with a room thermostat: This function enables you to choose the ambient temperature's influence on the setting. If no value is entered, the setting is made based on the temperature control. If the parameter is set at 100%, the setting is only based on the ambient temperature.			
1080	**S**	Quick setback	Off, Down to reduced setpoint, Down to frost prot setpoint		**Down to reduced setpoint**
1090	**S**	Maximum optimisation on switch-on	0... 360 min	10 min	**180 min**
1091	**S**	Maximum optimisation on switch-off	0... 360 min	10 min	**60 min**
1100	**S**	Start of increase in reduced functioning mode	-30... 10 °C, --°C	1 °C	**--**
1101	**S**	End of increase in reduced functioning mode	-30... 10 °C, --°C	1 °C	**-5 °C**
1130	**S**	Mixer valve increase	0... 50 °C	1 °C	**0 °C**
1134	**S**	Servomotor travel time	30... 873 s	1 s	**240 s**
1150	**I**	Floor controlled drying (figure 34, page 37)			**Arrêt**
		- Off: Early interruption of the current programme, programme inactive. - Operational heating. - Heating ready for occupation. - Operational heating + ready heating. - Ready heating + operational heating. - Manual: Manual mode enables you to programme your own concrete slab drying time.The function ends automatically after 25 days.			
1151	**I**	Manual floor drying setpoint (if line 1150 = manual)	0... 95 °C	1 °C	**25 °C**
		This function enables you to set the custom concrete slab drying temperature. This temperature remains fixed. The concrete slab-drying programme stops automatically after running for 25 days.			
1156	**I**	Current drying day	0... 32		**0**
1157	**I**	Terminated drying days	0... 32		**0**

Line		Function	Setting range or display	Setting increment	Basic setting
1200	**S**	Change of regime	None, Protection mode, Reduced, Comfort, Automatic		**Protection mode**
		Operating mode at end of concrete slab drying period.			
DHW setting (domestic hot water)					
		If the installation is fitted with the DHW kit.			
1610	**U**	Comfort setting	Reduced setting (line 1612)… 65 °C	1	**55 °C**
		The backup electrical system is required to reach this level.			
1612	**U**	Reduced setting	8 °C... Comfort setting (line 1610)	1	**40 °C**
1620	**I**	Release of DHW load	24h / day Heating circuit time programme Programme 4 / DHW Off-peak tariff (Off-peak) Programme 4 / DHW and Off-peak		**Programme 4 / DHW**
		24h / day: The temperature of the DHW is constantly maintained at the DHW comfort setting.			
		Heating circuit time programme: The DHW is produced according to the programming for the ambient temperature (with 1 hour in advance when switched on).			
		Programme 4 / DHW: The DHW programme is separate form the heating circuit programme.			
		Off-peak tariff* : The electrical backup heating is only authorised to operate during the off-peak period.			
		T'prog 4/DHW or low-tariff *: The electrical backup heating is authorised to operate during the comfort period or off peak.			
		* - Connect the "Power Provider" contact to input EX2 (see figure 27, page 27). In the case of a day /night contract, the electric back-ups for the DHW tank are subject to the power supplier's tariffs. Switching on the electric back-up for the DHW tank is only authorised during off-peak hours.			
1640	**I**	Anti-legionella function	Off, Periodic (depending line setting 1641) Set day of the week (depending line setting 1642)		**Off**
1641	**I**	Intervals for the anti-legionella cycles	1 to 7	1 day	**7**
1642	**S**	Weekday anti-legionella cycle run	Monday, Tuesday,...		**Saturday**
Swimming pool (Only with swimming pool kit option)					
2056	**U**	Generator heating setting	8... 35 °C		**22 °C**
Heat pump (HP)					
2803	**S**	Overrun time cond pump	8... 240 s	1 s	**240s**
2843	**S**	Compressor off time min	0... 120 min	1 °C	**8 min**
2844	**S**	Switch-off temp max	8... 100 °C	1 °C	**75 °C**
2862	**S**	Locking time stage 2	0... 40 min	1 min	**5 min**
2873	**S**	Compressor mod run time	10... 600 s	1 s	**240 s**
2882	**S**	Release integr electric flow	0... 500 °Cmin	1 °Cmin	**100 °Cmin**
2884	**S**	Release el flow below OT Electrical release - start-up with outside temperature	-30... 30 °C		**2 °C**
2886	**S**	Compensation heat deficit	Off, On, Only with floor curing fct		**Off**
2916	**S**	Max setpoint HP DHW charg	8... 80 °C		**52 °C**
2920	**S**	With electrical utility lock (EX1)	Locked (Blocked on standby), Released		**Released**
		Released : HP = ON _ Back-up DHW = off _ 1st back-up HP = off _ 2nd back-up HP = off _ Boiler = ON **Locked (Blocked on standby)** : HP = off _ Back-up DHW = off _ 1st back-up HP = off _ 2nd back-up HP = off _ Boiler = ON			

Line		Function	Setting range or display	Setting increment	Basic setting
Additional generator (Boiler connection)					
3700	**S**	Release under outside temperature	-50... 50 °C	1 °C	**2 °C**
3701	**S**	Release above outside temperature	-50... 50 °C	1 °C	**--**
3705	**S**	Time delay on stopping	0... 120 min	1 min	**20 min**
3720	**S**	Release integr boiler connection	0... 500 °Cmin	1 °Cmin	**100 °Cmin**
3723	**S**	Locking time	1... 120 min	1 min	**30 min**
Domestic hot water (DHW)					
		If the installation is fitted with the DHW kit.			
5024	**S**	Differential	0... 20 °C	1 °C	**7 °C**
5030	**S**	Limitation on load duration	10... 600 min	10 min	**90 min**
5055	**S**	Recooling temp	10... 95 °C	1 °C	**65 °C**
5057	**S**	Recooling collector	Off, Summer, Always		**Summer**
5061	**S**	Release of electrical resistance	24h / day, Release of DHW, Programme 4 / DHW		**Release of DHW**
5093	**S**	Not used			
Installation configuration					
5700	**I**	Pre-setting	1,2,3,... 9	1	**1**
		This control enables you to choose one of the 4 pre-selected installation configurations. The hydraulic layouts for the various configurations are detailed in the section: "Installation Configurations". - Pre-setting 1: 1 heating circuit with or without electrical back-up, with DHW tank. - Pre-setting 2: 2 heating circuits with or without electrical back-up, with DHW tank. - Pre-setting 3: Boiler connection and 1 heating circuit and DHW tank. - Pre-setting 4: Boiler connection and 2 heating circuits and DHW tank. - Pre-setting 5 and more: Not used.			
5710	**S**	Heating circuit 1	Off, On		**On**
5711	**S**	Cooling circuit 1	Off, System with 4 tubes, System with 2 tubes		**Off**
5715	**S**	Heating circuit 2	Off, On		**On**
5731	**S**	DHW controlling element Q3	No charging request, Charging pump, Diverting valve		**Diverting valve**
5806	**I**	Type el imm heater flow	1 : 3-stage, 2 : 2-stage excluding, 3 : 2-stage complementary, 4 : Modulating UX		**3 : 2-stage complementary**
5981	**S**	Contact type input EX1	Normally-closed contact (NC) Normally-opened contact (NO)		**NO**
5983	**S**	Contact type input EX2	Normally-closed contact (NC) Normally-opened contact (NO)		**NC**
5985	**S**	Contact type input EX3	Normally-closed contact (NC) Normally-opened contact (NO)		**NO**
6098	**S**	Not used			
6100	**S**	Outside temperature sensor correction	-3... 3 °C	0,1 °C	**0 °C**
6120	**S**	Installation frost-free mode	On, Off		**On**
6205	**S**	Re-initialise parameters	No, Yes		**No**
6220	**S**	Software version (RVS)	0... 99		**--**
6420	**S**	Function input H33 (= contact in X152)	1... 56		**1**
		(1) Mode changeover HC+DHW - (2) Mode changeover HC - (3) Mode changeover HC1 - (4) Mode changeover HC2 - (5) Mode changeover HCP - (6) to (10) Not used - (11) Mode changeover Heating Swimming pool - (12) to (56) Not used.			
6421	**S**	Contact type H33	Normally-closed contact (NC) Normally-opened contact (NO)		**NO**

Line		Function	Setting range or display	Setting increment	Basic setting
LPB system					
6600	**S**	Not used			
Error					
6711	**U**	Heat pump Reset	No, Yes		**No**
6800	**S**	History 1	Time, Date, Error code		
6802	**S**	History 2	Time, Date, Error code		
6804	**S**	History 3	Time, Date, Error code		
6806	**S**	History 4	Time, Date, Error code		
6808	**S**	History 5	Time, Date, Error code		
6810	**S**	History 6	Time, Date, Error code		
6812	**S**	History 7	Time, Date, Error code		
6814	**S**	History 8	Time, Date, Error code		
6816	**S**	History 9	Time, Date, Error code		
6818	**S**	History 10	Time, Date, Error code		
Maintenance / special regime					
7070	**S**	Interval time for maintenance HP	--, 1... 240	1 month	**--**
7071	**S**	Operating time HP since last maintenance. Reset ? (no, yes)	0... 240	1 month	**0**
7073	**S**	Average number of starts of the compressor per hour of operation, since the 6 last weeks. Reset ? (no, yes)	0... 12		**0**
7141	**U**	Emergency regime	Off, On		**Off**
		Off: Heat pump functions normally (with boosters if necessary). On: Heat pump uses the electric boost system or the boiler connection. Use the “On” position only in Assist mode or Test mode: may result in high power bills.			
7142	**S**	Emergency service operating type	Manual, Automatic		Manual
		Manual: Emergency mode is not active when a fault occurs (Emergency mode = OFF). Automatic: Emergency mode is active when a fault occurs (Emergency mode = ON). In "Automatic" position, the energy cost can be onerous if the error is not detected and eliminated.			
7150	**I**	Outside temperature simulation	-50... 50 °C	0,5	**--**
Inputs / outputs test					
7700	**I**	Relay test			**0**
		This consists of instructing the regulator's relays one by one and checking their outputs. This enables you to check that the relays are working and that the cabling is correct. Check that each appliance in the installation is operating correctly. (0) No test, (1) Everything is on STOP, (2) Relay output QX1 : heat pump CC1 (Main regulation board), (3) Relay output QX2 : Electrical back-up (1st stage) or Boiler connection distribution valve, (4) Relay output QX3 : Electrical back-up (2nd stage) or Boiler connection contact, (5) Relay output QX4 : DHW distribution valve, (6) Relay output QX5 : DHW Electrical back-up, (7) Relay output QX6 , (8) Relay output QX31 : Heat circ mix valve open Y1, (9) Relay output QX32 : Heat circ mix valve close Y2, (10) Relay output QX33 : heat pump CC2, (11) Relay output QX34, (12) Relay output QX35 : Swimming pool distribution valve, (13) Relay output QX21 module 1, (14) Relay output QX22 module 1, (15) Relay output QX23 module 1, (16) Relay output QX21 module 2, (17) Relay output QX22 module 2, (18) Relay output QX23 module 2, (19) Not used, (20) Not used, (21) Not used.			
		The display shows the “Key” symbol. Pressing the Info button displays "Error 368". **Warning: The component being tested is receiving electrical power throughout the test.**			
7710	**I**	Output UX1 test	0... 100%	1	**--**
7712	**I**	PWM signal UX1	0... 100%	1	**0**
7716	**I**	Output UX2 test	0... 100%	1	**--**
7719	**I**	PWM signal UX2	0... 100%	1	**0**
7722	**I**	Digital output DO2	Off, On		**Off**
7723	**I**	Heat pump D3	Off, On		**Off**

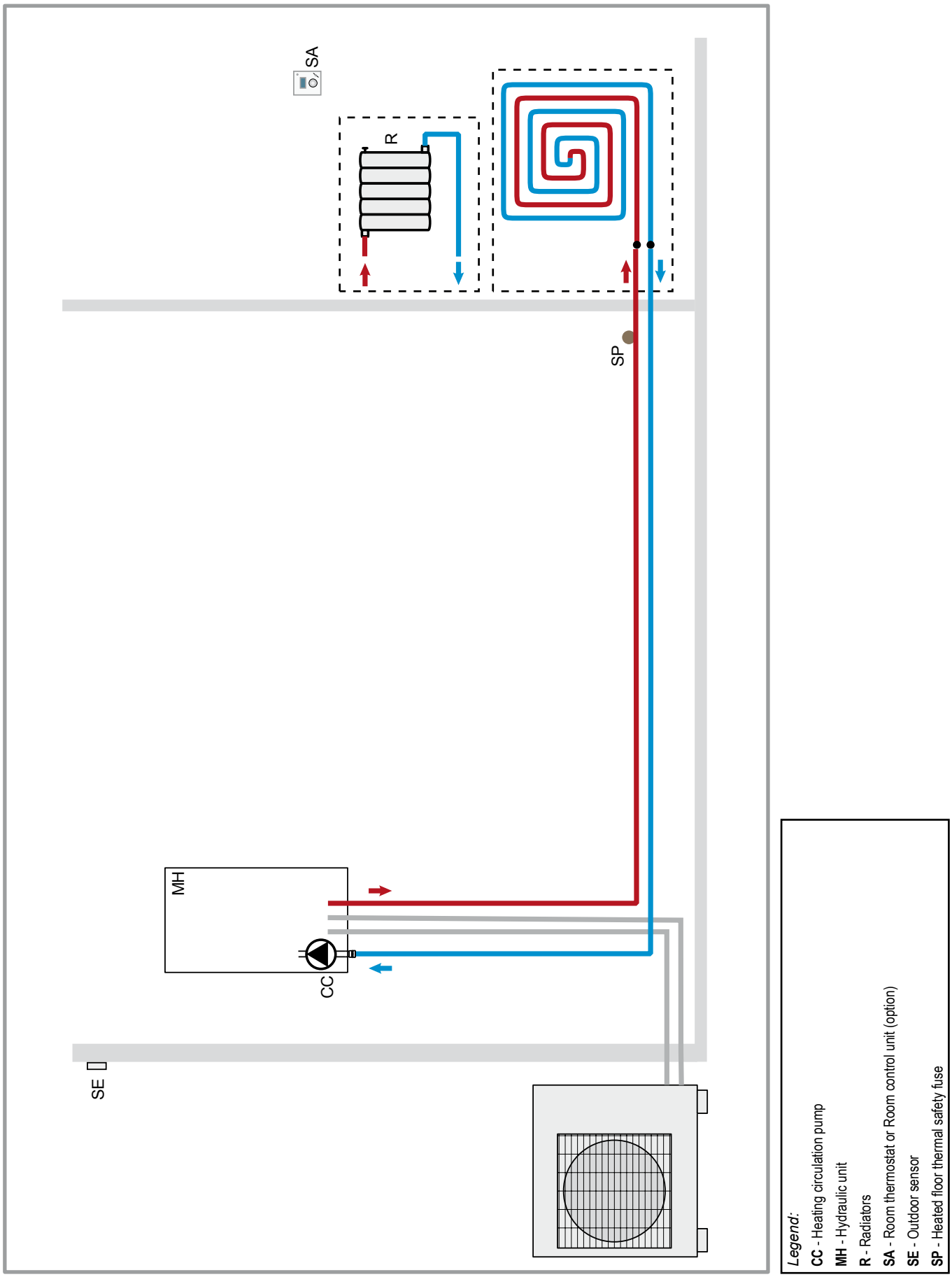
Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
7724	**I**	Outputs test U4 ("Inverter" command)	0... 100 %		**--**
7725	**I**	Voltage value U4 (Ux3)	0... 10 v		**--**
7820	**I**	Sensor temperature BX1 (HP flow temperature)	-28... 350 °C		**--**
7821	**I**	Sensor temperature BX2 (HP return temperature)	-28... 350 °C		**--**
7822	**I**	Sensor temperature BX3 (DHW temperature)	-28... 350 °C		**--**
7823	**I**	Sensor temperature BX4 (Outside temperature)	-28... 350 °C		**--**
7824	**I**	Sensor temperature BX5	-28... 350 °C		**--**
7825	**I**	Sensor temperature BX6	-28... 350 °C		**--**
7830	**I**	Sensor temperature BX21 module 1	-28... 350 °C		**--**
7832	**I**	Sensor temperature BX21 module 2	-28... 350 °C		**--**
7849	**I**	Contact status H2, module 2	Open, Closed		**Open**
7911	**I**	Input EX1 (Power shedding, EJP)	0, 230 V		**--**
7912	**I**	Input EX2 (Tariffs day/night)	0, 230 V		**--**
7913	**I**	Input EX3 (External fault)	0, 230 V		**--**
7973	**I**	Sensor temperature BX31 (Mixing circuit temp.)	-28... 350 °C		**--**
7974	**I**	Sensor temperature BX32	-28... 350 °C		**--**
7975	**I**	Sensor temperature BX33	-28... 350 °C		**--**
7976	**I**	Sensor temperature BX34 (Swimming pool exchanger temperature)	-28... 350 °C		**--**
7977	**I**	Sensor temperature BX35	-28... 350 °C		**--**
7978	**I**	Sensor temperature BX36	-28... 350 °C		**--**
7996	**I**	Contact status H33	Open, Closed		**Open**
State					
8000	**I**	State heating circuit 1			**--**
8001	**I**	State heating circuit 2			
8003	**I**	State DHW			**--**
8004	**I**	State cooling circuit 1			
8006	**I**	State heat pump			**--**
8007	**I**	Not used			
8010	**I**	Not used			
8011	**I**	State swimming pool			
8022	**I**	State supplementary source			**--**
Generator diagnosis					
8402	**I**	Electrical resistance flow 1	Off, On		**Off**
8403	**I**	Electrical resistance flow 2	Off, On		**Off**
8406	**I**	Condenser pump	Off, On		**Off**
8410	**U**	Heat pump return temperature	0... 140 °C		**--**
		Setpoint (flow) HP	0... 140 °C		**--**
8412	**U**	Heat pump flow temperature	0... 140 °C		**--**
		Setpoint (flow) HP	0... 140 °C		**--**
8413	**U**	Compressor modulation	0... 100%		**--**
8414	**I**	Modulation electric flow	0... 100%		**--**

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
8425	**S**	Condenser temperature differenc	-50... 140 °C		**--**
8454	**S**	Locking time Heat Pump Reset ? (no, yes)	0... 2730 h		**--**
8455	**S**	Heat pump stops counter Reset ? (no, yes)	0... 65535		**--**
8456	**S**	Hours run electrical flow Reset ? (no, yes)	0... 2730 h		**--**
8457	**S**	Start counter electrical flow Reset ? (no, yes)	0... 65535		**--**
8499	**S**	Not used			
8505	**S**	Not used			
8510	**S**	Not used			
8511	**S**	Not used			
8512	**S**	Not used			
8513	**S**	Not used			
8515	**S**	Not used			
Diagnostics consumers					
8700	**U**	Outside temperature	-50... 50 °C		**--**
8701	**U**	Minimum outside temperature Reset ? (no, yes)	-50... 50 °C		**--**
8702	**U**	Maximum outside temperature Reset ? (no, yes)	-50... 50 °C		**--**
8703	**I**	Attenuated outside temperature Reset ? (no, yes)	-50... 50 °C		**--**
		This is the average of the outside temperature over a 24-hour period. This value is used for automatic Summer / Winter switchover (line 730).			
8704	**I**	Mixed outside temperature	-50... 50 °C		**--**
		The mixed outside temperature is a combination of the current outside temperature and the average outside temperature calculated by the regulator. This value is used for calculating the initial temperature.			
8730	**I**	Circulation pump, circuit 1	Off, On		**Off**
8731	**I**	Mixer valve HC1 open	Off, On		**Off**
8732	**I**	Mixer valve HC1 closed	Off, On		**Off**
8740	**U**	Room temperature 1	0... 50 °C		**--**
		Ambient temperature setting 1	4... 35 °C		**20 °C**
8743	**U**	Flow temperature 1	0... 140 °C		**--**
		Flow temperature setpoint 1	0... 140 °C		**--**
8756	**U**	Cooling flow temperature 1	0... 140 °C		**--**
		Cooling flow temperature setpoint 1	0... 140 °C		**--**
8760	**I**	Circulation pump, circuit 2	Off, On		**Off**
8770	**I**	Room temperature 2	0... 50 °C		**--**
		Ambient temperature setpoint 2	4... 35 °C		**20 °C**
8773	**U**	Flow temperature 2	0... 140 °C		**--**
		Flow temperature setpoint 2	0... 140 °C		**--**
8820	**I**	DHW pump	Off, On		**Off**
8821	**I**	DHW electrical resistance	Off, On		**Off**

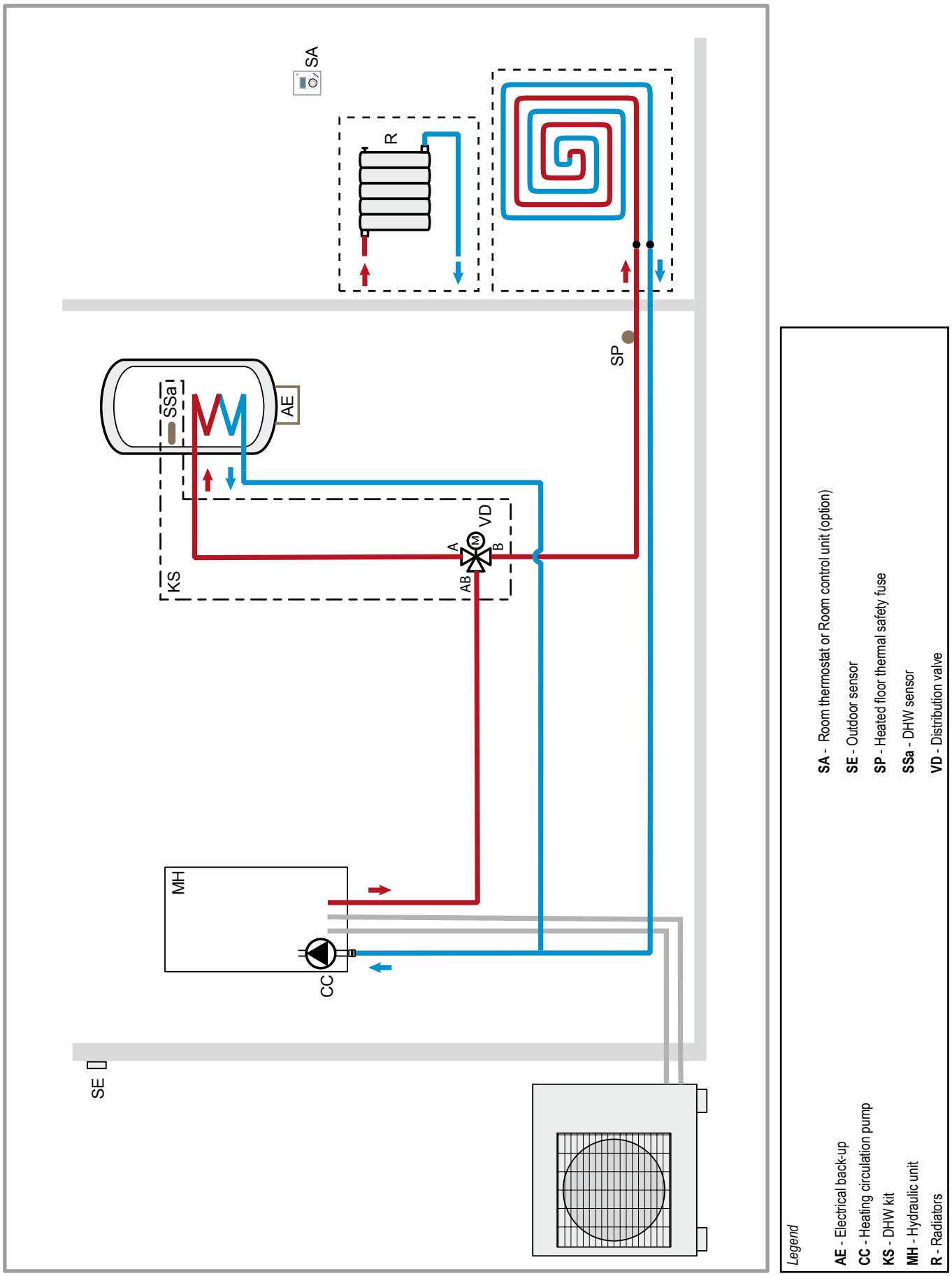
Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
8830	**U**	DHW (domestic hot water) temperature	0... 140 °C		**--**
		DHW temperature setpoint	5... 62 °C		**50 °C**
8840	**S**	DHW pump operating times	0... 2730 h		**--**
8841	**S**	DHW pump start-ups counter	0... 199999		**--**
8842	**S**	DHW electric operating times	0... 2730 h		**--**
8843	**S**	DHW electric start-ups counter	0... 65535		**--**
8900	**U**	Swimming pool temperature	0... 140 °C		**--**
		Swimming pool temperature setpoint	8... 35 °C		**22 °C**
8950	**I**	Common flow temperature	0... 140 °C		**--**
		Common flow temperature setpoint	0... 140 °C		**--**
8957	**I**	Common flow setpoint, refrigeration	0... 140 °C		**--**
8980	**I**	Not used			
8981	**I**	Not used			
9031	**I**	Relay output QX1	Off, On		**On**
9032	**I**	Relay output QX2	Off, On		**On**
9033	**I**	Relay output QX3	Off, On		**On**
9034	**I**	Relay output QX4	Off, On		**Off**
9035	**I**	Relay output QX5	Off, On		**Off**
9050	**I**	Relay output QX21 module 1	Off, On		**Off**
9051	**I**	Relay output QX22 module 1	Off, On		**Off**
9052	**I**	Relay output QX23 module 1	Off, On		**Off**
9053	**I**	Relay output QX21 module 2	Off, On		**Off**
9054	**I**	Relay output QX22 module 2	Off, On		**Off**
9055	**I**	Relay output QX23 module 2	Off, On		**Off**
9071	**I**	Relay output QX31	Off, On		**On**
9072	**I**	Relay output QX32	Off, On		**On**
9073	**I**	Relay output QX33	Off, On		**Off**
9074	**I**	Relay output QX34	Off, On		**Off**
9075	**I**	Relay output QX35	Off, On		**Off**

4 Overall hydraulic layout

• Configuration 1: 1 heating circuit



• Configuration 1: 1 heating circuit and DHW tank (with electrical back-up)



5 Electrical wiring diagrams

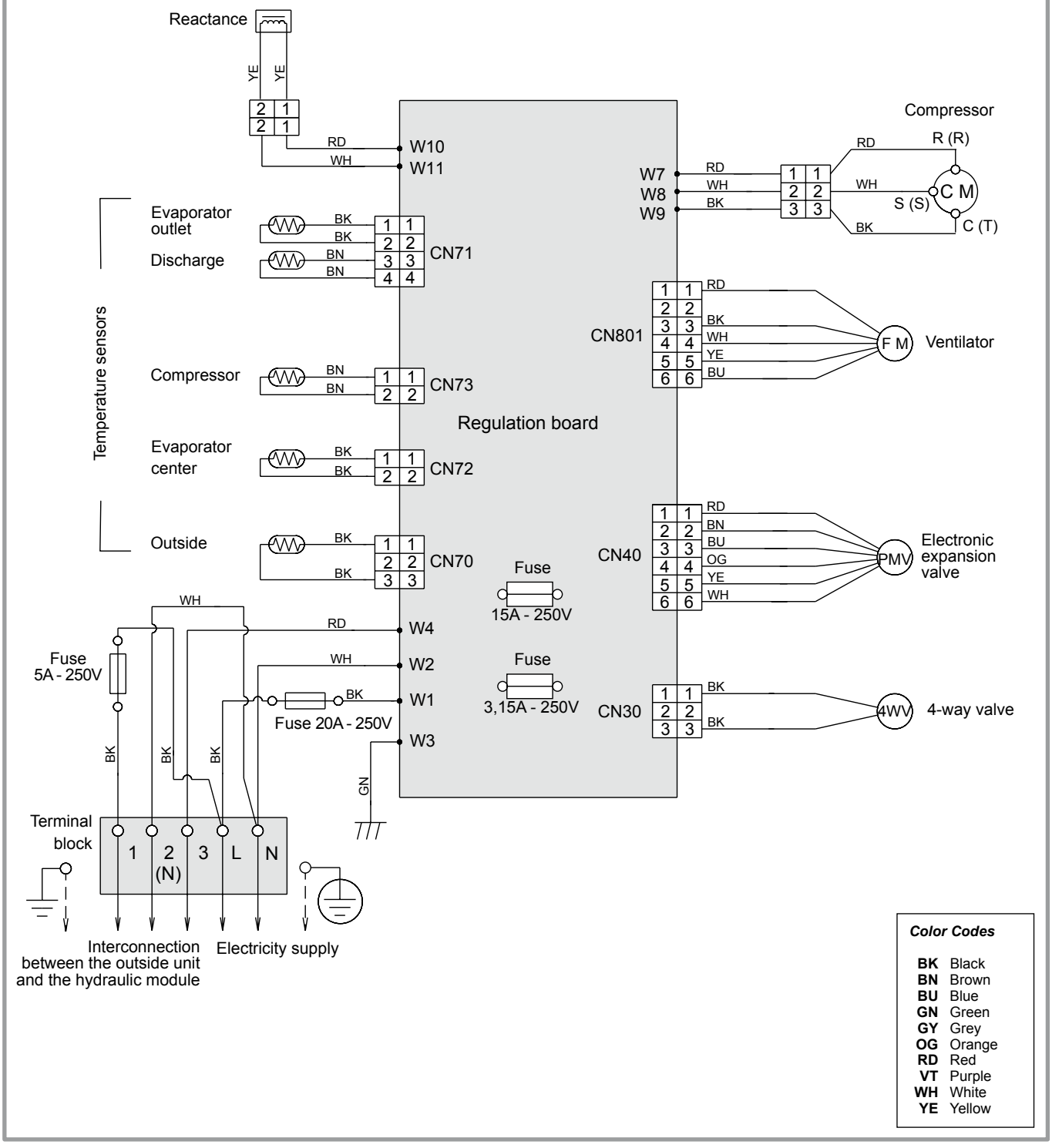


figure 36 - Electrical wiring of outside unit model extensa 5 & 6

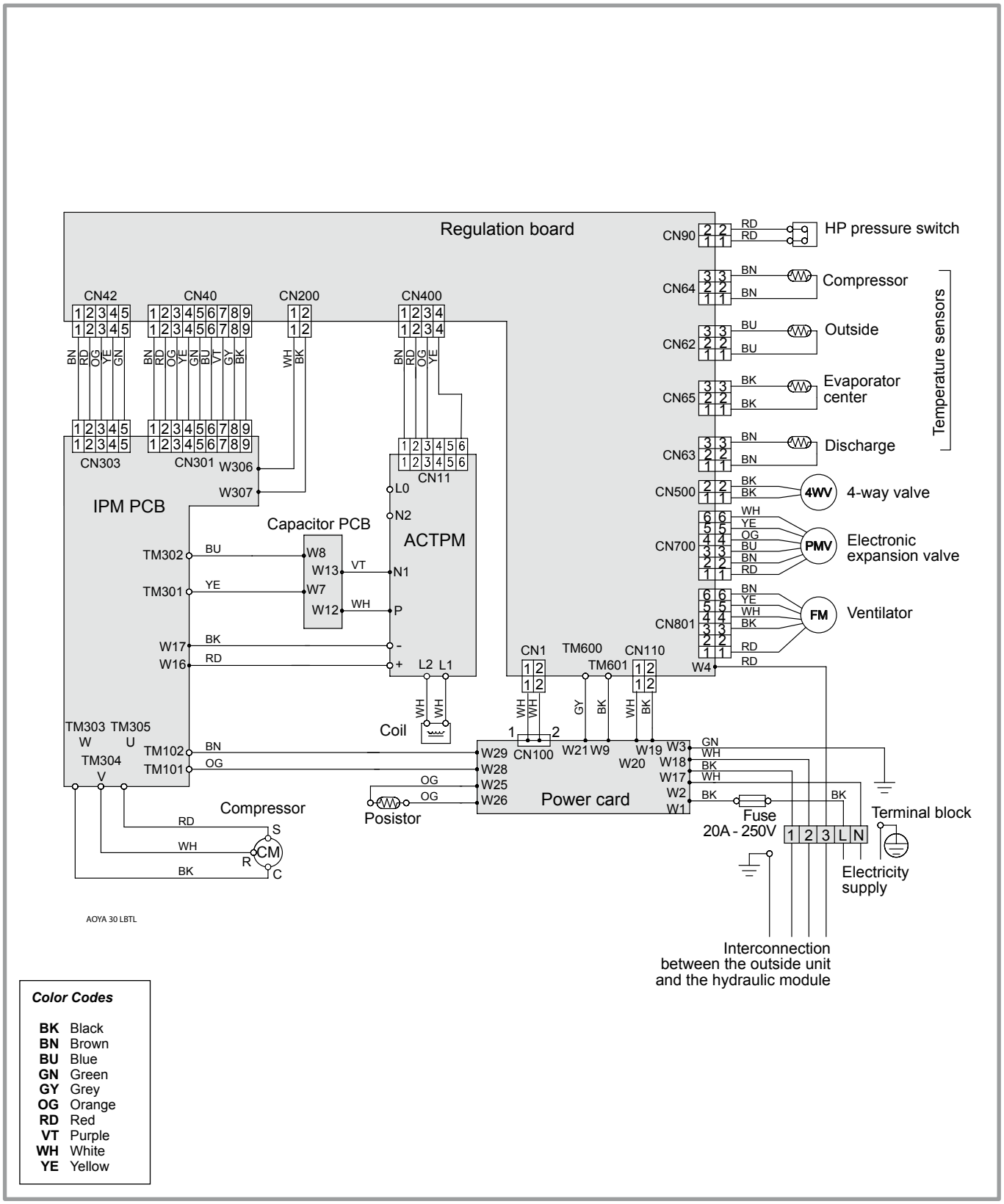


figure 37 - Electrical wiring of outside unit model extensa 8 & 10

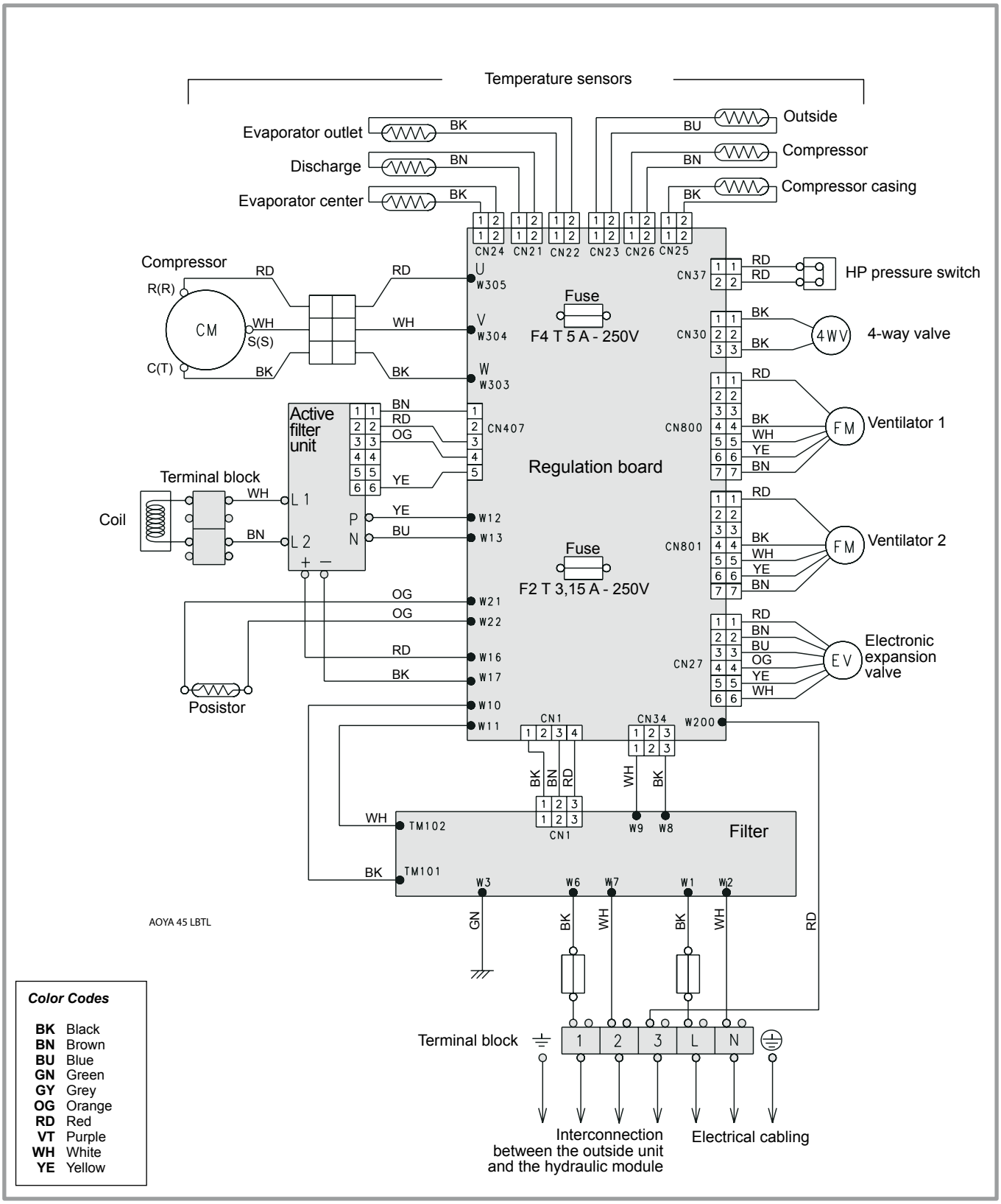


figure 38 - Electrical wiring of outside unit model extensa 13

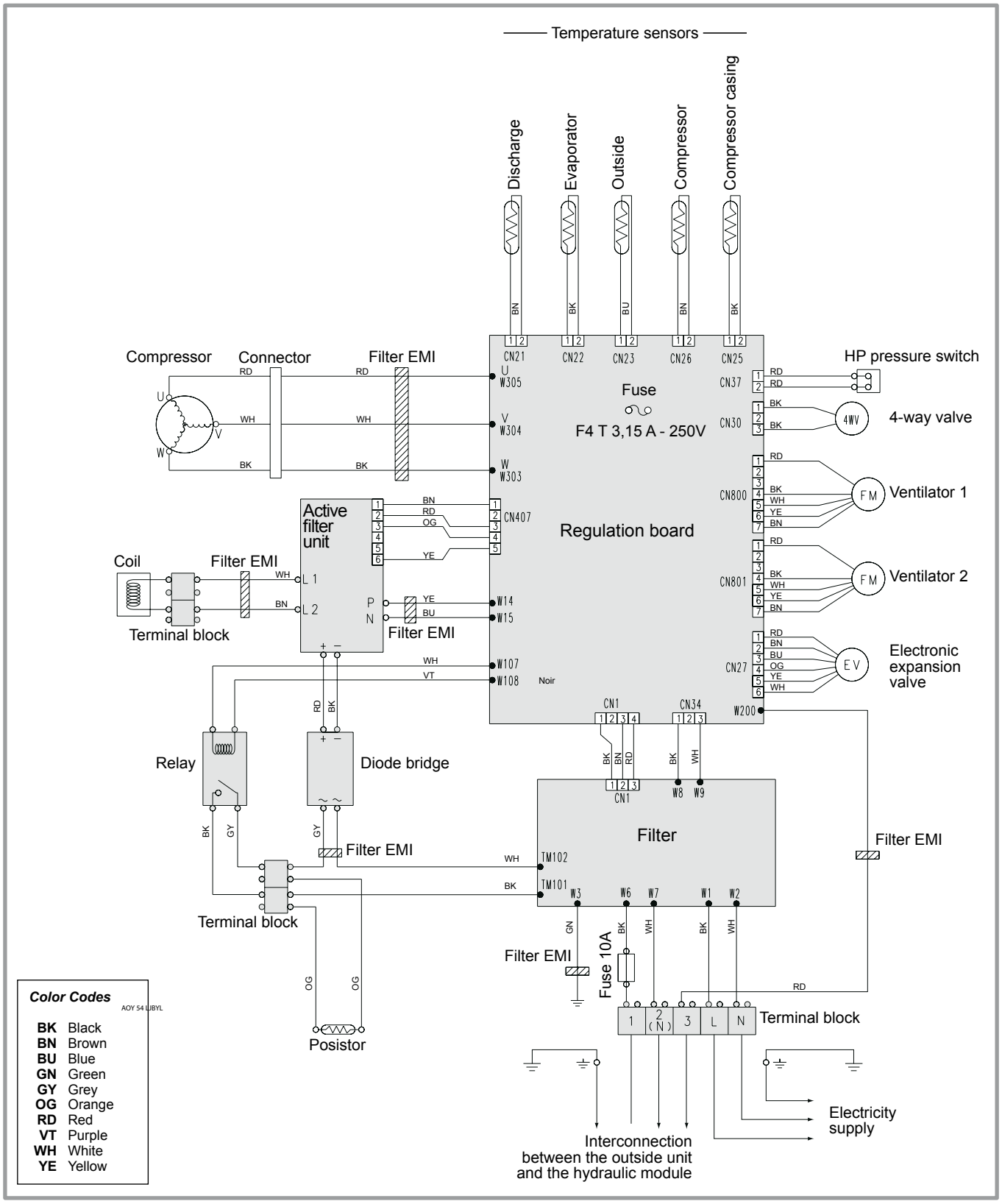


figure 39 - Electrical wiring of outside unit model extensa 16

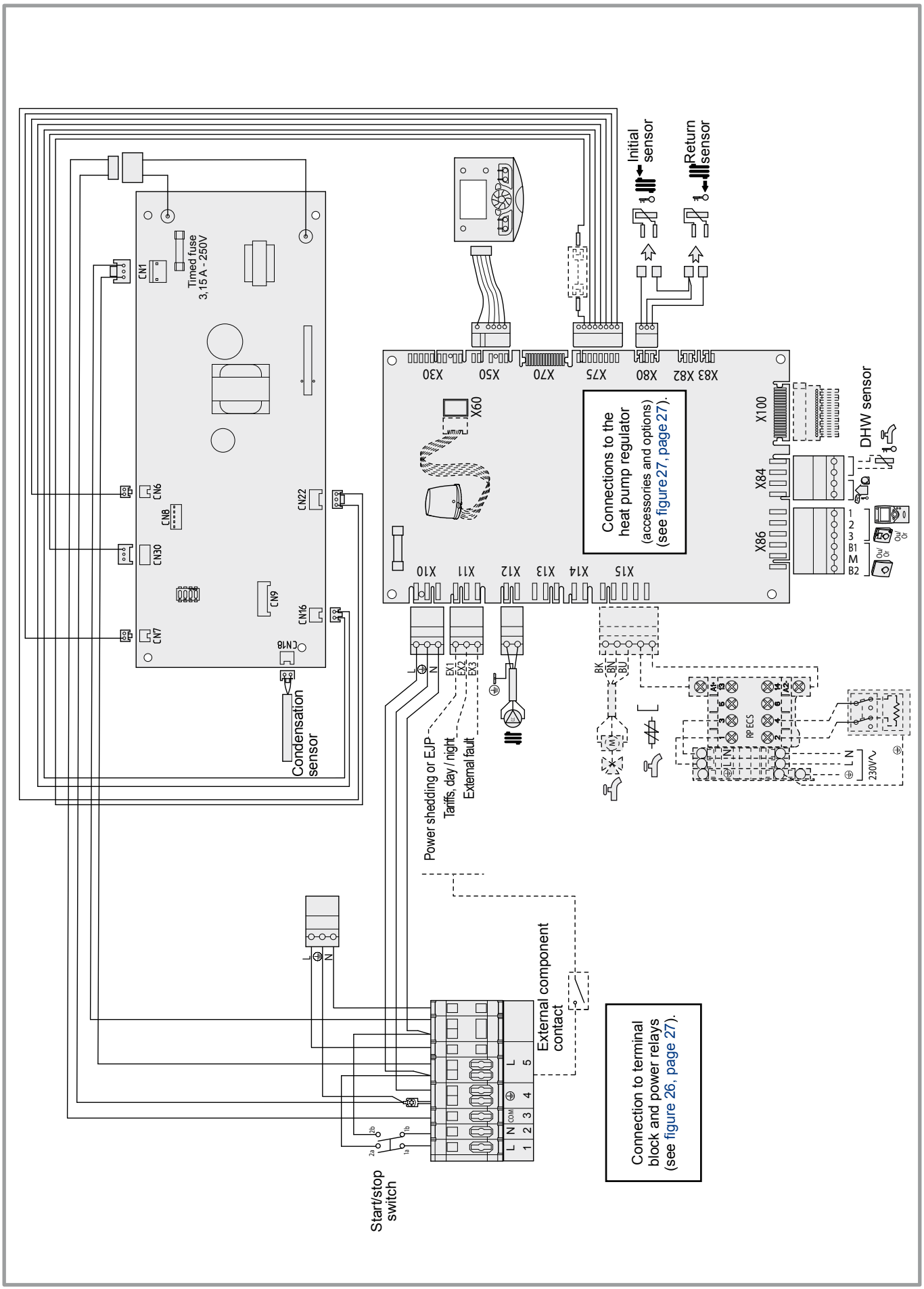


figure 40 - Electrical wiring, Hydraulic module (Except installer's connections)

6 Troubleshooting

Depending on whether the fault comes from the outdoor unit or the hydraulic unit, the fault may be indicated by the digital display or the diode on the interface cards.

6.1 Faults displayed on the hydraulic unit

Faults or breakdowns on the hydraulic unit are indicated by the display on the user interface.

The display shows the symbol.

Press the key for more details on the origin of the fault.

When the error has been resolved, the faults are re-initialised at zero automatically.

Hydraulic unit: Fault visible on the digital display.

Error number	*Error description*	*Error location*	*Heat pump operation despite the error*
-	No connection.	Failure to comply with room thermostat's polarity.	No
10	Outdoor sensor.	B9	Yes with OT = 0 °C
33	Heat pump initial temperature sensor error.	B21	Yes
44	Heat pump return temperature sensor error.	B71	Yes
50	DHW temperature sensor.	B3	Yes
60	Ambient temperature sensor 1.		Yes
65	Ambient temperature sensor 2.		Yes
105	Maintenance message.		Yes
121	Flow temperature for (HC1) not reached.		Yes
122	Flow temperature for (HC2) not reached.		Yes
127	Anti-legionella temperature not reached.		Yes
369	External fault (safety component).		No
370	Outside unit connection error. (In the start phase, see the para. "Start-up").	See below and page 55.	No

Hydraulic unit: Flashing of the diode visible on the interface card.

Diodes display		*Error contents*
LED 2 (green)	*LED 1 (red)*	
1 Flash	1 Flash	Communication error between Hydraulic unit and Outdoor unit.
4 Flashes	1 Flash	Heat pump capacity signal error (Open or short).
4 Flashes	2 Flashes	Hydraulic unit heat-exchange thermistor Error.
6 Flashes	3 Flashes	Inverter error.
6 Flashes	4 Flashes	Active filter error.
7 Flashes	1 Flash	Discharge thermistor error.
7 Flashes	2 Flashes	Compressor thermistor error.
7 Flashes	3 Flashes	Heat-exchange thermistor (outlet / intermediate) error.
7 Flashes	4 Flashes	Outdoor thermistor error.
7 Flashes	7 Flashes	Heat sink thermistor error.
7 Flashes	8 Flashes	Expansion valve thermistor error.
8 Flashes	4 Flashes	Current sensor error.
8 Flashes	6 Flashes	Pressure sensor error / Pressure switch error.
9 Flashes	4 Flashes	Current trip.
9 Flashes	5 Flashes	Detection of compressor position error / Compressor start up error.
9 Flashes	7 Flashes	Outdoor unit fan motor error.
10 Flashes	1 Flashes	Discharge temperature protection.
10 Flashes	3 Flashes	Compressor temperature protection.
10 Flashes	5 Flashes	Low pressure abnormal.
Continuous flashing (1 sec On / 1 sec Off)		Pump down operation.
Continuous lighting	Off	Defrosting.

6.2 Faults displayed on the outdoor unit

To access the electronic board, you must remove the front (right-hand) facing from the outdoor unit.
Faults are coded by diode flashes.

Outdoor unit, model AOYA18LALL (model extensa 5 & 6).

Diode display	*Erroneous element*
0,1 seconds lit and 0,1 seconds unlit.	Defective temperature sensor (see hydraulic module).
0,5 seconds lit and 0,5 seconds unlit.	Abnormal intensity detector error.
2 seconds lit and 2 seconds unlit.	Electric current circuit breaker error.
5 seconds lit and 5 seconds unlit.	Defective fan motor.
0,1 seconds lit and 2 seconds unlit.	Position of the compressor’s rotor not detected.
5 seconds lit and 0,1 seconds unlit.	Abnormal PAM circuit voltage.
1 seconds lit and 0,1 seconds unlit.	Timer cut off.
2 seconds lit and 5 seconds unlit.	Abnormal compressor temperature.
5 seconds lit and 2 seconds unlit.	Active filter error.
Permanently lit.	Abnormal discharge temperature.

Outdoor unit, model AOYA30LBTL (model extensa 8) & model AOYA36LBTL (model extensa 10).

Diode display	*Erroneous element*
0,1 seconds lit and 0,1 seconds unlit.	Defective temperature sensor (see hydraulic module).
0,5 seconds lit and 0,5 seconds unlit.	Defective IPM card.
2 seconds lit and 2 seconds unlit.	Electric current circuit breaker error.
5 seconds lit and 5 seconds unlit.	Defective fan motor.
0,1 seconds lit and 2 seconds unlit.	Position of the compressor’s rotor not detected.
5 seconds lit and 0,1 seconds unlit.	Defective ACTPM card.
Permanently lit.	Abnormal discharge temperature.

Outside unit, model AOYA45LBTL (model extensa 13) & model AOY54LJBYL (model extensa 16).

Diode display	*Erroneous element*
1 Flash.	Transmission error, "hydraulic module - outside unit".
2 Flashes.	Defective “discharge” temperature sensor.
3 Flashes.	Defective “evaporator” temperature sensor.
4 Flashes.	Defective “outside” temperature sensor.
5 Flashes (model extensa13).	Defective “evaporator centre” temperature sensor.
6 Flashes (model extensa13).	Abnormal discharge temperature.
7 Flashes.	Defective compressor temperature sensor.
8 Flashes.	Defective “compressor casing” temperature sensor.
9 Flashes.	Defective HP pressure switch.
10 Flashes (model extensa13).	Abnormal compressor temperature.
12 Flashes.	Defective IPM card.
13 Flashes.	Position of the compressor’s rotor not detected.
14 Flashes.	Compressor is not operating.
15 Flashes.	Defective upper fan motor.
16 Flashes.	Defective lower fan motor.
5 seconds lit and 1 seconds unlit.	Switched to safety mode.
1 seconds lit and 1 seconds unlit (model extensa13).	Switched to vacuum.
Permanently lit.	No error.

☞ **Ensure that the general electrical power supply has been cut off before starting any repair work.**

☞ **When the HP is not under tension, protection frost-free is not assured.**

6.3 Information display

Various data can be displayed by pressing the info button.

Depending on the type of unit, configuration and operating state, some of the info lines listed below may not appear.

- Possible error messages from the error code list (see table, page 52).
- Possible service messages from the maintenance code list.
- Possible special mode messages.
- Various data (see below).

Designation	***Line***
Floor drying current setpoint .	-
Current drying day.	-
Terminated drying days.	-
State heat pump.	8006
State supplementary source.	8022
State DHW.	8003
State swimming pool.	8011
State heating circuit 1.	8000
State heating circuit 2.	8001
State cooling circuit 1.	8004
Outdoor temperature.	8700
Room temperature 1.	8740
Room setpoint 1.	
Flow temperature 1.	8743
Flow temperature setpoint1.	
Room temperature 2.	8770
Room setpoint 2.	
Flow temperature 2.	8773
Flow temperature setpoint 2.	
DHW (domestic hot water) temperature.	8830
Heat pump return temperature.	8410
Setpoint (return) HP.	
Heat pump flow temperature.	8412
Setpoint (flow) HP.	
Swimming pool temperature.	8900
Swimming pool temperature setpoint.	
Minimum remaining stop time for compressor 1.	-
Minimum remaining running time for compressor 1.	-

7 Quick-start procedure

Before switching on the hydraulic unit:

- Check the electric wiring.
- Check the refrigeration circuit and make sure the gas supply has been performed.
- Check the pressure of the hydraulic circuit (1-2 bar), check that the heat pump is purged, and the rest of the installation.

7.1 Start-up check-list

7.1.1 Before starting-up

• Sight checks

Outdoor unit (see chapiter "Installation of the outdoor unit" page 12).	OK	Non compliant	
Location and fittings, condensate evacuation.			
Compliance with distances from obstacles.			

• Hydraulic checks

Hydraulic unit (see chapiter "Installing the hydraulic unit" page 14).	OK	Non compliant	Value
Connection of pipes, valves and pumps (1 or 2 circuits, DHW).			
Installation water volume (expansion vessel of adequate capacity ?).			
No leaks.			
Main system pressure and degassing (0,3bar > expansion vessel pre-loading).			

• Refrigeration connections and checks

(see chapiters "Refrigeration connections" page 16 and "filling the installation with gas" page 20).	OK	Non compliant	
Connections between units (pipe length, flare tightening torque...).			
Installation of HP, LP pressure switches on liquid line (small pipe).			
Pump down required.			
Nitrogen leak test (~ 25 bar).			
Refrigerant filling of hydraulic unit and pipes.			
Opening of refrigeration valves to outdoor unit.			

• Electrical checks

Outdoor unit (see chapiter "Electrical connections" page 23).	OK	Non compliant	Value
Main power supply 230v.			
Protection by rated circuit breaker.			
Cable cross-section.			
Earth connection.			

Hydraulic unit (see chapiter "Electrical connections on the hydraulic unit side" page 26).	OK	Non compliant	
Connection with outdoor unit (phase, neutral, earth).			
Sensors connection (positioning and connections).			
3 way valve and circulators connections.			
Power supply and protection of electric auxiliary.			

7.2 Commissioning and quick setup of the system

- urn ON the start/stop switch.
- Configure the hydraulic circuit (setting 5700):

  Presettings:

  1. 1 heating circuit with or without electrical back-up (default).
  2. 2 heating circuits with or without electrical back-ups.
  3. Boiler connection, 1 heating circuit.
  4. Boiler connection, two heating circuits.
  5. and more not used.

- Time, Date and time programs for HC1, HC2, DHW if different than default values.
- Ajust the heating curve slope (720 & 1020).
- Adjust the maximum start setting (741 & 1041).
- Set the scheduled periods for heating (500 to 516 & 520 to 536).

The heat pump is ready for operation !

You can also:

6. Adjust the DHW setpoints if different than default values.
7. Start a legionella cycle (1640).

7.2.1 Starting-up

• Switching On

(see chapiter "Star-up" page 28).	OK	Non compliant	
Switching On.			
Initialisation for a few seconds.			
Operation of the pumps.			
Outdoor unit starts after 3 mins.			

• Outdoor unit checks

	OK	Non compliant	Value
Operation of fan(s), compressor.			
Current measurement.			
After a few minutes, measurement of air temp. delta.			
Check condensation and evaporation pressure/temperature.			

• Hydraulic unit checks

	OK	Non compliant	Value
After 15 mins of operation.			
Primary water temp. delta.			
DHW priority (switching of selection valve).			
Operation of heating, mixing valve, boiler backup, …			
Control settings.			

• Room control

(see chapiter "Configuring the room thermostat" page 28).	OK	Non compliant	
Settings, manipulations, checks.			
Setpoint display.			
Explanations on use.			

7.3 Settings sheet

Setting	*Description*	*Set to.*	*Menus*
Preliminary settings			
20	language		*operator section*
1	hour / minutes		*time & date*
2	day / month		*time & date*
3	year		*time & date*
5700	installation config.		*configuration*
Heating circuit No. 1 if 2 circuits = the least warm one (e.g.: floor)			
710	comfort setpoint		*HC1 adjust.*
712	reduced setpoint		*HC1 adjust.*
720	heating curve slope		*HC1 adjust.*
741	flow temp setpoint max		*HC1 adjust.*
750	room influence		*HC1 adjust.*
790 / 791	optimis. at switch-on / off		*HC1 adjust.*
834	servomotor travel time		*HC1 adjust.*
850 / 851	floor drying		*HC1 adjust.*
Heating circuit No. 2 (with 2nd circuit option) = the warmest one (e.g.: radiators)			
1010	comfort setpoint		*HC2 adjust.*
1012	reduced setpoint		*HC2 adjust.*
1020	heating curve slope		*HC2 adjust.*
1041	flow temp setpoint max		*HC2 adjust.*
1050	room influence		*HC2 adjust.*
1090 / 1091	optimis. at switch-on / off		*HC2 adjust.*
1134	servomotor travel time		*HC2 adjust.*
1150 / 1151	floor drying		*HC2 adjust.*
Domestic Hot Water (if DHW kit)			
1610	nominal DHW temp. setpoint		*DHW*
1612	reduced DWH temp. setpoint		*DHW*
1620	DHW release		*DHW*
1640 to 1642	legionella cycle		*DHW*
5024	DHW switch-on differ.		*DHW tank*
5030	charging time limitation		*DHW tank*
5061	heater release		*DHW tank*

Setting	*Description*	*Set to.*	*Menus*
Boiler backup			
3700	OT.switch-on authoris.		*addit. gen.*
3705	swith-off delay		*addit. gen.*
Miscellaneous			
6420	input H33 function	1	*configuration*
6100	OT sensor correction		*configuration*
6120	frost protection on/off		*configuration*
6205	reset settings		*configuration*
6220	software version		*configuration*
6711	reset heat pump		*error*
Cooling			
5711	cooling unit	2 pipes	*configuration*
Faults (if a fault occurs, press"Info" key)			
No. 10	outdoor sensor		
No. 33	flow temp. sensor		
No. 44	return temp. sensor		
No. 50	DHW temp. sensor		
No. 60	room sensor 1		
No. 65	room sensor 2		
No. 105	maintenance message		
No. 121	HC1 flow T not reached		
No. 122	HC2 flow T not reached		
No. 127	leg. prot. T not reached		
No. 369	external fault (EX3)		
No. 370	outdoor unit connect error		
6711	reset heat pump		*error*
Heat pump			
2844	switch-off temp max		*heat pump*
2884	OT auth. to start elec. aux.		*heat pump*
2920	Pk day clear (EX1) rel / lock		*heat pump*
Swimming pool (with "swimming pool" kit option)			
2056	generator setpoint		*Sw pool*
Outdoor unit faults (see page 55)			

7.4 Start-up data sheet

Site		**Installer**	

Outdoor unit	serial No.		**Hydraulic unit**	serial No.	
	model			model	

Type de fluide frigorigène		Charge fluide frigorigène	kg

Checks			**Operating voltage & current on outdoor unit**				
Compliance with positioning distances			L/N	V			
Condensate evacuation correct							
Electric connections / connections tightnees			L/T	V			
No GAS leaks (unit ID No. :)							
Installation of refrigeration connection correct (lenght : m)			N/T	V			
Reading in HEATING operating mode							
Compressor discharge temperature	°C		Icomp	A			
Liquid line temperature	°C						
Condensation temperature HP = bar	°C	}	sub-cooling	°C			
Tank water output temperature	°C	}	ΔT condensation	°C			
Tank water input temperature	°C	}	ΔT secondary	°C			
Evaporation temperature LP = bar	°C						
Suction temperature	°C	}	Overheating	°C			
Battery air input temperature	°C	}	ΔT evaporation	°C			
Battery air output temperature	°C	}	ΔT battery	°C			

Hydraulic system of hydraulic unit					
Secondary system	Low temp. heating floor		Circulator brand	Type	
	LT Radiators				
	fan coils				
Domestic hot water ; tank type					
Estimated water volume of secondary system	L				

Options & accessories :					
Power supply for connected electric auxiliary			Room thermostat T37		
Operation in cooling mode possible			Room thermostat T55		
Location of room sensor correct			Room control unit T75		
Cooling kit			Room control unit T78		
DHW kit			Details		
2 zone kit					
Control settings					
Configuration type					
Essential settings					

8 Instructions for the user

Explain to the user how his installation operates, in particular the functions of the room thermostat and the programmes accessible to him from the user interface.

Emphasise that a heated floor has significant inertia and that therefore any adjustments must be made progressively.

Also explain to the user how to check the filling of the heating circuit.

Complies with :

- Low voltage directive 2006/95/EC, under standard EN 60335-1.
- Electromagnetic compatibility Diretive 2004/108/EC,
- Directive 2006/42/EC Machinery,
- Directive for pressurised equipment 97/23/EC.

This appliance also conforms to:

- Regulation 842/2006 of the european parliament on certain fluorinated greenhouse gases.
- The standards relating to the product and the testing methods used: Air-conditioners, refrigeration units and heat pumps with compressor driven by electric motor for heating and refrigeration EN 14511-1, 14511-2, 14511-3, and 14511-4.
- To standard XP ENV 12102: Air-conditioners, heat pumps and dehumidifiers with compressor driven by electric motor. Measurement of airborne noise. Determination of acoustic power level.

This appliance is marked with this symbol. This means that electrical and electronic products shall not be mixed with general household waste.
European Community countries(*), Norway, Iceland and Liechtenstein should have a dedicated collection system for these products.
Do not try to dismantle the system yourself as this could have harmful effects on your health and on the environment.
The dismantling and treatment of refrigerant, oil and other parts must be done by a qualified installer in accordance with relevant local and national regulations.
This appliance must be treated at a specialized treatment facility for re-use, recycling and other forms of recovery and shall not be disposed of in the municipal waste stream.
Please contact the installer or local authority for more information.
* subject to the national law of each member state

Date of installation :

Contact of your heating technician or your after-sales service.

www.atlantic.fr
Société Industrielle de Chauffage
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